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DEPARTMENT OF THE NAVY
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BRAC CLEANUP PLAN
REVISION 03
HUNTERS POINT SHIPYARD

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CHAPTER 1

INTRODUCTION AND BASE DESCRIPTION

This Base Realignment and Closure (BRAC) Cleanup Plan (BCP) is a Department of Defense (DoD) document required for all closing DoD installations. The BCP is intended to aid in the implementation of President Clinton's July 2, 1993, decision to expedite and improve environmental response actions and facilitate the transfer and reuse of DoD property while protecting human health and the environment. This document represents the third revision of the BCP for Engineering Field Activity West (EFA WEST), Naval Facilities Engineering Command, Hunters Point Shipyard (HPS). The BCP was prepared using information available as of January 31, 1997. The original HPS BCP is dated March 5, 1994.

HPS is in the southeast portion of San Francisco County, California, as shown in Figure 1-1. HPS is a deactivated U.S. Department of the Navy of Navy (Navy) shipyard that was selected and approved for closure and disposition by the BRAC Commission in 1991. HPS is currently under caretaker status by EFA WEST of San Bruno, California. Portions of HPS have been leased to private parties. The Navy, with support from Congresswoman Nancy Pelosi and Mayor Willie Brown, is continuing to determine and use the best possible transfer options for the City and the Navy.

Because of the presence of hazardous materials at HPS from past shipyard operations, the U.S. Environmental Protection Agency (EPA) placed HPS on the National Priorities List in 1989. Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Navy, EPA, and the California Environmental Protection Agency (Cal/EPA) executed a Federal Facility Agreement (FFA). The original FFA was signed in 1990 between the Navy, EPA, and Cal/EPA. The 1990 FFA was modified in 1992 to include the Water Board as a signatory. The FFA provides a working agreement between the regulatory agencies (EPA and Cal/EPA) and the Navy to facilitate the investigation and cleanup of current and former HPS properties. The area of investigation includes on-base property; one off-base property (the railroad right-of-way); and formerly used defense sites (FUDS), which are properties once owned by the Navy but since transferred to other parties. For purposes of the Navy's Installation Restoration Program (IRP), HPS is divided into five parcels,

Parcels A through E, in 1992, and Parcel F was added in 1995 (see Figure 1-2). The FFA schedule for completion of IRP work based on Parcels A through E was renegotiated on February 4, 1994, and again on June 7, 1995. The current FFA covers the completion of the record of decision for Parcels A through E and if required, the preparation of a Phase 2 Ecological Work Plan for Parcel F. Parcel F is the off-shore portion of HPS. The schedules are presented in Chapter 5.

This BCP is a working document to be used for planning environmental restoration and compliance activities at HPS. This BCP reflects a comprehensive, bottom-up program review prepared in consultation with the HPS BRAC Cleanup Team (BCT) to facilitate the return of HPS property to the community for beneficial reuse. The BCP is designed to be used as a primary document to (1) justify the environmental budget during the budgeting process (see Appendix A); (2) reflect the collective effort, concurrence, and ownership of the BCT; (3) identify the availability of HPS real estate for transfer or interim reuse; and (4) discuss opportunities for accelerating the environmental program. Changes to this BCP in response to State of California, Federal, and community input could result in changes affecting the implementation, cost, and schedule of the planned actions.

The organization and features of this BCP; environmental response objective; the BCP purpose, development, updates, and distribution; BCT and project plan; overview of HPS; and on-base and off-base property characteristics are discussed below.

1.1 ORGANIZATION AND FEATURES OF THIS BCP

This section provides a brief user guide to the organization and features of this BCP.

1.1.1 BCP Organization

The BCP is organized as follows:

- Chapters 1 and 2 provide general information regarding the BCP and HPS. Chapter 1 provides general information regarding the purpose and organization of the BCP, applicable environmental laws, the environmental setting and history of HPS, and on-base and off-base property characteristics. Chapter 2 provides general information regarding the property disposal and reuse plan.

- Chapters 3 and 4 include specific information on the environmental condition of the base. Chapter 3 discusses the current environmental status of the HPS IRP and associated environmental compliance programs, environmental conditions at HPS, and community involvement activities. Chapter 4 presents the strategy for achieving environmental restoration and compliance at HPS.

- Chapter 5 provides the current schedules of planned and anticipated activities to be performed under the environmental restoration program for HPS.

- Chapter 6 describes unresolved issues that must be addressed by the BCT and other project team members and proposes strategies for resolving these issues.

- Appendix A presents the current funding requirements, as well as a summary table of past costs for the environmental restoration program.

- Appendix B provides a chronological list of project reports.

- Appendix C summarizes the decision documents related to interim removal actions, and final remedial actions for those areas which have completed the RI/FS process.

- Appendix D summarizes each decision document for each site for which a no further response action planned (NFRAP) decision has been made. Currently, no NFRAPs have been prepared for HPS.

- Appendix E presents working schematic conceptual diagram models for Parcels B through E, and text discussion of the geology and hydrogeology for Parcels A through E.

- Appendix F presents BCT action items resolved in 1996.

1.1.2 BCP Features

To assist the reader, a list of commonly used abbreviations, acronyms, and symbols and a glossary of terms follow the table of contents. Figures and tables follow the chapter in which they are referenced. Figures appear first, followed by tables. Many documents and other materials are parenthetically cited in the main text and tables. Two examples of the reference citations are as follows: "(Accurso 1992)" and "(EFA WEST 1991)." A completed list of the cited references follows Chapter 6 of this BCP.

Also, because of the complexity of HPS, the figures have been designed with clear film overlays to show specific information such as IRP site locations, buildings currently used, buildings containing asbestos, habitats, and reuse plans on a base-wide scale. These overlays can be removed from the binding and placed on top of the master site layout map (Figure 1-2). Figures showing the areas of

identified chemical and petroleum hydrocarbon contamination in soil and groundwater, and utilities are presented on a larger scale by parcel in figures in Chapter 3.0. Figures showing the IRP site locations are presented by parcel in figures in Chapter 4.0. Figures 3-3 through 3-7, 3-10, and 3-11 have been omitted from Revision 03.

This BCP provides special materials related to HPS's environmental issues and reuse. Information related to resources for environmental issues includes the following:

- Table 1-1 lists project team members and their roles.
- Table 3-1 lists IRP site names, chemical contamination and potential sources, estimated human health risk, proposed cleanup, and CERCLA status.
- Figure 3-1 presents a chart of historic and current site groupings.
- Figures 3-2, 3-8, 3-9, and 3-27 provide maps of various HPS features presented as clear film overlays.
- Figures 3-8, 3-9, and 3-12 through 3-19 show areas of contamination in soil and groundwater for Parcels B through E.
- Figures 4-1 through 4-6 show, by parcel, IRP site locations.
- Figures E-2 through E-6 show by parcel, for Parcels B through E, areas of soil and groundwater contamination and the potential for these contaminants to migrate.

Information related to reuse issues includes the following:

- Table 1-6 and Figure 1-4 present a list and map, respectively, of buildings currently used.
- Tables 2-1 and 3-1 lists the proposed reuse as of November 26, 1996 by parcel and IRP sites, respectively. In addition, Figure 2-1 provides a map of the proposed reuse as of November 26, 1996.
- Table 3-10 and Figure 3-28 include assessments of DoD's classification of subparcels.
- Table 3-11 lists HPS buildings and their environmental conditions.
- Table 3-6 and Figure 3-20 provide a list and map of buildings, respectively, impacted by the presence of asbestos.

1.2 ENVIRONMENTAL RESPONSE OBJECTIVES

The objectives of the base closure environmental restoration program at HPS are to (1) protect human health and the environment; (2) attempt to meet the reuse goals established by the community; (3) and comply with existing state and Federal laws, regulations, and other requirements. To achieve these objectives, CERCLA Section 120(h), as amended by the Community Environmental Response and Facilitation Act of 1992 (CERFA), will be implemented as discussed below.

CERCLA

- Conduct all IRP activities in a manner consistent with Section 120 of CERCLA as amended by SARA.
- Meet FFA deadlines as outlined in Chapter 5 of this BCP.
- Continue efforts to identify all potentially contaminated areas through continued sampling and analysis under the IRP.
- Incorporate any new sites into the FFA, as appropriate.
- Initiate selected removal actions to control, eliminate, or reduce risks to manageable levels.
- Develop, screen, and select remedial actions that reduce risks in a manner consistent with statutory requirements.
- Conduct long-term remedial actions for groundwater and any necessary periodic reviews for wastes left on site.

CERFA

- Identify, through environmental baseline surveys, any portion of HPS that has no environmental problems precluding its availability for community reuse. Site-specific environmental baseline surveys (EBS) were conducted in 1995 for HPS leases approved prior to 1994, and a base-wide EBS was prepared, finalized, and sent to the regulatory agencies in June 1996. An EBS is a comprehensive literature survey to determine existing base conditions. The main purpose of the base-wide EBS is to aid in the implementation of President Clinton's July 2, 1993 decision to expedite and improve environmental response actions and facilitate the transfer and reuse of DoD property.

- Establish priorities for environmental restoration and restoration-related compliance activities so that HPS disposal and reuse goals can be met.

- Identify and map the environmental condition of HPS, concurrent with remedial investigation (RI) efforts. An RI is a study required under CERCLA of a site where evidence has been found of a past release or disposal of hazardous chemicals that may present a significant risk to human health or the environment. The RI involves the collection of soil and groundwater samples, analysis of samples for hazardous chemicals, and estimation of associated risks to human health or the environment based on likely exposure scenarios to the chemicals actually present at the site.

- Consider future land uses when characterizing risks associated with releases of petroleum, hazardous substances, pollutants, contaminants, and hazardous wastes.

- Identify and map areas suitable and unsuitable for transfer by deed.

- Complete RIs as soon as practicable for each source area, zone, or parcel in an order of priority that takes into account both environmental concerns and redevelopment plans.

- Conduct remedial actions for environmental and property disposal and reuse priority areas as soon as practicable.

- Advise the real estate arm of the Navy BRAC organization about property considered suitable for transfer and property not suitable for transfer because it has not been properly evaluated or poses an unacceptable risk to human health or the environmental.

- Establish interim and long-term monitoring plans for remedial actions, as appropriate.

1.3 BCP PURPOSE, DEVELOPMENT, UPDATES, AND DISTRIBUTION

This BCP summarizes the status and strategy of the HPS IRP and environmental compliance program. The BCP outlines the response action approach at the installation in support of base closure. In addition, it defines the status of efforts to resolve technical issues so that continued progress and implementation of scheduled activities can occur. The HPS BCP strategies and schedules herein are designed to streamline and expedite the necessary response actions associated with Parcels A through F and areas adjacent to these parcels to facilitate possible disposal and reuse activities as soon as possible. Remedial action protocols will incorporate future land uses during the evaluation of exposure scenarios.

The HPS BCP was prepared in consultation with the HPS BCT and was developed using the five-step process as described below.

1. Form the BCT and project team. The members of the BCT and project team are listed in Table 1-1 and discussed in Section 1.4.

2. Conduct a bottom-up program review of all past and ongoing environmental programs at HPS. The goal of this step was to gain a complete picture of the status of HPS environmental restoration activities (projects to clean up past releases of hazardous chemicals) and the status of compliance programs (programs to ensure that HPS is in compliance with environmental regulations that govern current operations).

3. Compile the information gathered and adopt recommendations for streamlining and expediting ongoing environmental restoration and compliance programs.

4. Write and assemble the BCP. The BCP include information obtained during Step 2; recommendations from Step 3; and strategies, rationales, schedules, and costs of implementations. The BCT will update the BCP to incorporate community, project team, and the Restoration Advisory Board (RAB) input.

5. Implement the strategies and schedules presented in the BCP and maintain and update the BCP as the restoration of HPS progresses.

1.4 BCT AND PROJECT TEAM

The role of the BCT is to assemble a project team composed of a DoD base transition coordinator and technical experts drawn from within each agency and from private contractors. The DoD member coordinates BCT actions with the Community Reuse Committee. The current core members of the HPS BCT are as follows:

- Mr. Michael McClelland, P.E., EFA WEST BRAC Environmental Coordinator
- Ms. Claire Trombadore and Ms. Sheryl Lauth, EPA Region 9, Remedial Project Managers
- Mr. Cyrus Shabahari, Cal/EPA, Department of Toxic Substance Control (DTSC), Remedial Project Manager

BCT meetings are conducted approximately every 2 weeks and allow periodic program overview and the means to reach consensus on decisions with Federal and state regulators. Table 1-1 lists the roles and responsibilities of BCT members and additional key participants for the HPS project. An additional key component in the cleanup and base conversion process is the RAB. The RAB is made

up of community members, representatives of the community organizations, and other state and Federal agencies. Table 1-2 lists the members of the RAB.

1.5 OVERVIEW OF HUNTERS POINT SHIPYARD

This section discusses the environmental setting, base history, and installation mission of HPS.

1.5.1 Environmental Setting

This section provides a brief description of the HPS location and topography, climate and meteorology, geology, hydrogeology, surface water drainage, and ecology.

Location and Topography

HPS is located on a long promontory in the southeastern portion of San Francisco that extends eastward into San Francisco Bay (see Figure 1-1). The installation is bounded on the north and east by the bay and on the south and west by the Bayview/Hunters Point district of San Francisco. The on-base property at HPS consists of 936.37 acres, 493.47 of which are on land and 442.90 of which are below bay waters (EFA WEST 1994a). Additionally, HPS also consists of a 3.39-acre off-base property, the railroad right-of-way. This right-of-way, which is approximately 3,200 feet long and 30 feet wide, extends off-site to the west of HPS along Crisp Avenue.

About 70 to 80 percent of HPS consists of relatively flat lowlands constructed by placing fill materials along the bay margin. The remaining land consists of a moderately to steeply sloping ridge in the northwest portion of HPS. Elevations range from 0 to 18 feet above mean sea level in the lowlands to 180 feet above mean sea level at the ridge crest. Material from the ridge was used to fill lowlands and construct building pads at HPS except in the landfill located at the southwestern boundary of HPS.

The landfill was created with native materials mixed with industrial debris and refuse. Most of the lowlands are covered by asphalt paving and structures. The open areas are either sparsely vegetated or covered by bare soil.

Climate and Meteorology

The climate at HPS is characterized by partly cloudy, cool summers with little precipitation and mostly clear, mild winters with rainstorms. The area rainfall average is 19.71 inches per year (Mare Island 1994a).

The air monitoring conducted at HPS indicates that the prevailing wind direction is from west to east (Brown and Caldwell 1995). The average and maximum wind speeds at HPS are approximately 10 and 23 miles per hour, respectively (PRC/HLA 1993).

Geology

The geologic units underlying HPS consist of Quaternary-aged (2 million years before present) and Jurassic-Cretaceous-aged (65 to 200 million years before present) sediments and rocks. In general, the stratigraphic sequence, from the land surface downward, is as follows: Artificial Fill, Slope Debris and Ravine Fill, Undifferentiated Upper Sand Deposits, Bay Mud Deposits, Undifferentiated Sedimentary Deposits, and the Franciscan Complex. The Franciscan Complex includes undifferentiated sandstone and shale, chert, altered greenstone, and serpentinite. The peninsula forming HPS is within a north-to-west trending belt of the Franciscan Complex known as the Hunters Point Shear Zone. This belt extends diagonally northwest to southeast through the city of San Francisco from the south abutment of Golden Gate Bridge to Hunters Point. Rocks within this belt are intensely deformed and sheared. Serpentine is the predominant rock type, but other rock types characteristic of the Franciscan Complex are also present (PRC 1996a).

Generally, Artificial Fill covers Undifferentiated Upper Sand Deposits, Bay Mud Deposits, Undifferentiated Sedimentary Deposits, and Franciscan Complex at HPS. Bay Mud Deposits are absent in some areas, especially in the area adjacent to the 1935 shoreline (PRC 1996a). Figure 1-3 shows the geologic conditions at HPS. The geology of HPS is further detailed in Appendix E.

Hydrogeology

Two aquifers and a water-bearing zone have been identified at HPS: the A-aquifer, the B-aquifer, and the bedrock water-bearing zone. The A-aquifer consists of saturated fill material and Undifferentiated

Upper Sand Deposits overlying Bay Mud Deposits. The A-aquifer may overlie bedrock in excavated areas adjacent to the former shoreline. In lowland areas, the A-aquifer is generally unconfined, groundwater depths ranging from 2 to 15 feet below ground surface. The B-aquifer consists of Undifferentiated Sedimentary Deposits underlying Bay Mud Deposits and overlying the Franciscan Complex. The bedrock water-bearing zone consists of the upper, weathered and deeper, fractured portions of the Franciscan Complex and appears to be in direct hydraulic communication with the A-aquifer where the A-aquifer directly overlies it (PRC 1996a). The hydrogeology of HPS is further detailed in Appendix E.

Groundwater at HPS is not used for any purpose, and no irrigation or water supply wells are located at HPS (SFDPH 1996). The nearest public water supply well is located approximately 2.5 miles inland from HPS (Tetra Tech 1993a). However, a commercial bottled-water company, Albion Mountain Spring, is located approximately 2,300 feet northwest of HPS. Albion Mountain Springs extracts groundwater through underground galleries for commercial sale to the public. However, the groundwater extracted and used by Albion appears to be from an aquifer separate and distinct from groundwater beneath HPS (PRC 1995a). Any contamination in HPS groundwater is not likely to impact Albion's bottled water supply.

Surface Water Drainage

Surface water drainage at HPS is primarily through sheet-flow runoff collected by an on-site storm drain system that discharges through several outfalls into San Francisco Bay. No naturally occurring channelized drainage exists; any preexisting drainage channels have been filled or modified by construction over the years, potentially affecting subsurface drainage patterns.

Ecology

Terrestrial and aquatic ecosystems are present at HPS. Although most of HPS is covered by asphalt, buildings, or other structures, vegetated areas supporting terrestrial fauna exist. These areas are ruderal (disturbed), landscaped, nonnative grassland, and salt marsh. All four habitats are somewhat disturbed as a result of past and current activities. The aquatic system consists of wetland, pelagic

intertidal, and subtidal habitats contiguous with San Francisco Bay. The ecology of HPS is further discussed in Section 3.3.

1.5.2 Base History

The history of HPS is discussed as two time periods: from 1776 to 1938 and from 1939 to the present. Congress passed legislation for the acquisition of HPS in 1939. The operational history of HPS is summarized in Table 1-3.

1776 to 1938

Hunters Point has been part of recorded maritime history since 1776. Title to the land dates back to the eighteenth century. In 1776, Juan Manuela de Ayala sailed into San Francisco Bay and recorded his findings for the Viceroy of Spain. When Mission San Francisco de Asis was founded in 1776, this area (then referred to as Point Avisidero) and the inland area known as Point Viejo became mission lands and were used for cattle grazing. By 1849, Robert, John, and Phillip Hunter established residences on the promontory. Although various legal battles clouded the Hunters' claim to the land, the land bore the name Hunters Point by 1858.

It is important to view the Hunters Point area in the context of California's tremendous growth during the gold rush. At the height of the gold rush, California's shipping industry strained to meet the rapid expansion. New, larger vessels referred to as the California Clipper Ships were built in the 1840s. These large ships created a strong demand for dry docks in the San Francisco Bay region.

Hunters Point was advantageous not only in terms of its geography but also because it already had a timber pier and docking facilities in the 1850s. In 1867, the California Dry Dock Company purchased the tip of Point Avisidero to build a dry dock. A 490-foot-long, graving dry dock (Dry Dock 1) was completed in 1868, with a pumphouse 50 feet from the forward end of the dry dock on the south side. By 1900, the San Francisco Dry Dock Company owned the dry dock. This company built a second dry dock in 1903. Dry Dock 2 was the largest dry dock on the West Coast, capable of servicing all the classes of ships traveling the Pacific Ocean. A new pumphouse was completed in 1907 to serve both dry docks.

In 1909, the Navy began to investigate acquiring Hunters Point. However, at that time, Congress was not inclined to vote on new purchases, and the acquisition of Hunters Point was not pursued. Under terms of a 1916 subsidy contract with the Navy, the Union Iron Works Dry Dock Company began construction of a 1,004-foot-long dry dock that became Dry Dock 3.

After 1918, Dry Dock 1 no longer existed as a separate entity. The Hunters Point facility consisted of Dry Dock 2 and the new Dry Dock 3, which included part of the original Dry Dock 1. Dry Dock 3 was at the time the second largest dry dock in the world.

These dry docks and ship repair functions were not the only commercial activities that occurred at the point. Fishing enterprises were located adjacent to both sides of the dry docks. At the turn of the century, the Alaska Codfish Company's packing houses were located north of HPS. The Chinese had established a strong shrimp industry in San Francisco Bay as early as 1871. Five such shrimp camps were adjacent to the docks, each consisting of homes, offices, and warehouses. Also adjacent to the Hunters Point facility were lodging houses, saloons, and various local businesses.

1939 to Present

The 76th Congress (1938-1940), pressured by a growing concern that the United States would become involved in a war, requested that the Secretary of the Navy appoint a board of officers to report on the advisability of acquiring the Hunters Point dry docks. This board recommended that the Navy acquire the Hunters Point facility. This recommendation was incorporated into legislation, House of Representatives (HR) Bill 878, which was passed by Congress on June 2, 1939.

A second House of Representatives Bill, HR 5766, was incorporated into HR 878. Two key issues arose during the debate on HR 5766. These issues still impact on the current viability of land transfer at Hunters Point. Hunters Point was then an annex of the Navy's Mare Island Naval Shipyard (Mare Island) facility. Members of Congress questioned the annex designation because they feared it would restrict development. Congress also questioned the terms of acquisition. By this time, Bethlehem Steel owned Hunters Point, and the $4 million purchase price offered by the Navy, which was 60 percent of what Bethlehem believed a fair market price, led to lease arrangements allowing Bethlehem use of the property.

In 1940, the U.S. Government received title to the land at Hunters Point. Of the property acquired, Dry Docks 2 and 3, two pumphouses, a boilerhouse, a gatehouse, and a paint storage building still exist and form a historic district. These buildings meet the requirements for placement on the National Register of Historic Places. The development of Hunters Point by the Navy included the purchase of 585 acres of land and all the accompanying construction.

During World War II, the influx of workers created a housing shortage. By 1943, the Navy planned that Hunters Point would accommodate 4,000 family apartments and 7,500 dormitory units. The hillsides above Hunters Point were carved to accommodate the temporary apartment buildings, and roads were constructed to connect the housing areas to the shipyard. The railroad right-of-way was acquired on June 10, 1945, from the Southern Pacific Railroad Company and the City of San Francisco.

In addition, Dry Dock 4 was completed in less than 9 months during the World War II period. Approximately 5 million cubic yards of soil was excavated from the area and deposited as fill north and south of Dry Docks 2 and 3. This soil was used to construct a cofferdam behind which Dry Dock 4 was constructed. Dry Dock 4 has been identified as meeting criteria for placement on the Nation Register of Historic Places.

On November 30, 1945, the facility was re-designated the U.S. Naval Radiological Defense Laboratory (NRDL), which originated at Hunters Point as the Radiological Safety Section, a part of the San Francisco Naval Shipyard Industrial Laboratory. NRDL evolved as a separate command under the auspices of the shipyard in September 1950. The first laboratory buildings used by the NRDL have either been demolished, transferred to other parties, or are no longer used for radiological purposes.

By 1951, Hunters Point shifted from operating as a general repair facility to specializing in submarine repair, although the Navy continued to operate the facility to overhaul carriers and ships. In April 1965, the Hunters Point Naval Shipyard Command and Mare Island Naval Shipyard Command merged to become the San Francisco Bay Naval Shipyard. The Navy operated the facility as a carrier and ship repair facility through the late 1960s. On January 31, 1970, the San Francisco Bay Naval Shipyard divided, and the two facilities separated again. Each facility became an independent, self-governing

shipyard: Hunters Point Naval Shipyard (HPS) and Mare Island Naval Shipyard. HPS was deactivated in 1974 and remained relatively unused until 1976.

In 1976, the Navy leased most of HPS to a private ship-repair company, Triple A Machine Shop Incorporated (Triple A). Triple A leased the property from July 1, 1976, to June 30, 1986. Triple A did not vacate the facility until March 1987. During the lease period, Triple A used dry docks, adjacent berths, machine shops, power plants, various offices, and warehouses, to repair commercial and naval vessels. Triple A also subleased portions of the property to various other businesses. Some of these subleases are still in effect. After the expiration of its lease, Triple A was involved in extensive litigation regarding the disposal of hazardous wastes at HPS. Alleged activities conducted by Triple A that resulted in the generation of hazardous substances and wastes include (1) removing hazardous substances and waste, such as waste oil and contaminated bilge water, from ships under repair; (2) constructing, demolishing, or renovating buildings at the site, which involved disposal of asbestos lagging materials as well as electric capacitors and transformers that contained polychlorinated biphenyl (PCB) contaminated oil; and (3) ship repair that generated sandblast fines containing metals, waste paint, and spent solvent.

HPS became the focus of a landmark lawsuit when the City of San Francisco sued Triple A, alleging illegal storage and disposal of hazardous substances. During the preliminary hearing of the Triple A trial, the on-site Navy staff and former Triple A employees alleged the illegal storage and disposal of large amounts of spent sandblast fines, waste oils, spent solvents, acids, and paint sludges. During the ensuing trial, the court found that Triple A was guilty of using 20 different HPS sites for illegal waste disposal and fined the company $9 million. An appeals court reduced the fine to $115,000. The City of San Francisco settled a civil suit against Triple A to cover cleanup of HPS. The 20 illegal disposal sites were subsequently investigated under the Navy's IRP.

Because of the presence of hazardous materials from past shipyard operations, HPS was placed on the National Priorities List in 1989 as a Superfund site pursuant to CERCLA as amended by SARA. In April 1990, HPS came under the administrative jurisdiction of Treasure Island Naval Station and was named Treasure Island Naval Station, Hunters Point Annex (HPA). In 1991, DoD placed HPS on the Base Closure List, mandating that contamination at HPA be remediated and the property be made available for nondefense use. HPS was designated as a "B" site by the Agency for Toxic Substances

and Disease Registry (ATSDR) in 1991, meaning that the shipyard poses no imminent threat to human health but has the potential to pose a long-term threat to human health (ATSDR 1991). On March 31, 1994, control of HPS was transferred to the Naval Facilities Engineering Command, Western Division (WESTDIV, now EFA WEST), in San Bruno, California and in 1996, HPA was renamed Hunters Point Shipyard (HPS).

1.5.3 Installation Mission

The Hunters Point Naval Shipyard was primarily used to modify, maintain, and repair ships (NEESA 1984). The mission of the shipyard before decommission in 1974 was to provide logistical support for assigned ships and service craft; perform authorized work in connection with construction, conversion, overhaul, repair, alteration, dry docking, and outfitting of ships and craft as assigned; perform research, development, and test work as assigned; and provide services and material to other activities and units as directed by competent authority. To implement mission objectives, the following tasks and functions were assigned to Hunters Point Naval Shipyard:

- Perform authorized ship work in connection with the new construction, conversion, overhaul, repair, alteration, activation, and deactivation of all types of naval ships, including missile ships; and outfit naval ships and service craft.
- Design naval ships.
- Operate as a planning yard for ship alterations.
- Perform research, development, test, and evaluation work as assigned.
- Perform research, development, test, and engineering work on material handling for replenishment-at-sea projects as assigned by the Naval Ships Systems Command.
- Operate the West Coast Shock Facility to evaluate the design, construction, and operation of combat ships against attack by noncontact underwater weapons, including planning and conducting shock tests of shipboard equipment by using the Floating Shock Platform, providing technical support for conducting routine shock tests against operational ships, conduct research and development studies in the shock and vibration area, and performing measurement and analysis of test data.
- Provide electronic and weapons engineering services upon request to Navy and U.S. Coast Guard ships in the San Francisco Bay area.

- Conduct civilian and military training programs as required.

- Provide accounting, civilian payroll, savings bond, military disbursement, public works, industrial relations, medical, dental, berthing, supply, messing, fire prevention and fire protection, security, and other services to organizational components of the Navy and other U.S. Government agencies, as assigned or as requested by competent authority.

- Serve as stock point for designated material controlled by bureaus and offices of the Navy, naval shore (field) activities, and various defense supply centers.

- Serve as a material-assembly and planning activity center for military alterations authorized to be accomplished by private shipyards on ships undergoing overhaul on the West Coast.

- Provide outpatient medical care to Navy and Marine Corps personnel and their dependents attached to the shipyard, tenant activities, afloat units in the shipyard, and retired military beneficiaries in the area.

- Provide housing facilities, as available, for authorized military and civilian personnel, including personnel aboard ships present at HPS.

- Provide controls for the procurement, handling, storage, use, and disposal of sources of ionizing radiation, as well as related facilities associated with industrial operations.

- Provide industrial support to the Westinghouse Polaris (Trident II) Test Complex.

In support of base missions, past activities have generated hazardous and potentially hazardous wastes, including spent petroleum products, solvents, acids, caustics, detergent, paint sludges, sandblast grit, radioactive materials, and various other waste chemicals and liquids.

Table 1-3 summarizes general historical installation operations and hazardous substance activities; Table 1-4 provides information on the Navy's hazardous waste generating and disposal activities during the primary operational period of HPS from the 1940s to 1974.

1.6 ON-BASE AND OFF-BASE PROPERTY CHARACTERISTICS

This section discusses HPS property acquisitions, tenants, and transferred properties.

1.6.1 Property Acquisition

Real estate summary maps provided by EFA WEST and the "Summary of Land Title Conditions at the Hunters Point Annex, Naval Station Treasure Island" (EFA WEST 1994b) indicate that all of the HPS property is "owned in fee," except for 1.84 acres that is "in-grant." Table 1-5 lists previous land owners, acreage owned, and the property acquisition date by the Navy for land that now makes up HPS. The summary report of land title conditions also states that 48 acres of HPS could be affected by the Tidelands Trust. These 48 acres were purchased from Bethlehem Steel and consist partly of submerged land and partly dry land made from fill. The remainder of HPS is said to have been acquired through "condemnation" and is therefore not affected by the Tidelands Trust (EFA WEST 1994b).

1.6.2 Tenants

Both on-base properties and the off-base railroad right-of-way are leased to private parties. Table 1-6 lists the buildings at HPS, their former and current use, and current tenants (EFA WEST 1997a and 1997b). Figure 1-4 shows the buildings currently being used. Many of the on-base buildings have been leased and used by private tenants for maritime and nonmaritime industrial and artistic purposes for more than 10 years. Representative uses include storage space, art studios, machine works, woodworking shops, automobile restoration garages, recreational vehicle parking, and movie filming. About 200 on-site workers are employed by small businesses (Sullivan 1993), and 400 on-site artists work in the studios (EFA WEST 1995a). The off-base property, the railroad right-of-way, is currently being leased to the Golden Gate Railroad Museum for transporting trains to the restoration area located on base in Parcel E.

1.6.3 Transferred Properties

Under the FFA, the Navy, EPA, and Cal/EPA agreed to investigate FUDS (Installation Restoration site 74 [IR-74], IR-75, and IR-76) as part of the IRP (see Figure 1-5). These properties are located adjacent to Parcels A and E. To date, the Navy has transferred property at HPS to private parties the following four times:

- IR-74 (Buildings 815 and associated land) and IR-75 (Building 820 and associated land) were transferred to Ted Lowpensky, a molding manufacturer. Building 815, consisting of 4.229 acres, was acquired by Ted Lowpensky (private citizen) on December 12, 1984. This building is currently leased to The Filesafe Company. Building 820, along with 6.1591 associated acres, was transferred to Ted Lowpensky on July 17, 1981, and is currently used as a wood molding shop.

- IR-76 (Buildings 830 and 831 and associated land), consisting of 3.829 acres, was transferred to the University of California at San Francisco on April 17, 1978.

- On October 9, 1980, a 4.8-acre portion northwest of Parcel A was transferred to the City. The land has since been used for a major housing development.

- The 17.07-acre property at Islais Creek north of HPS was transferred in 1980 to a private owner and is now used as a lumber yard.

Buildings 815, 820, 830, and 831 are former NRDL sites. Buildings 815 and 820 have been radiologically cleared, and documentation received from the Navy indicates that no further radiological investigation is necessary for the other buildings. One underground fuel storage tank was identified at the west end of the Building 830 and 831 property during a title search and review of Sanborn Maps during the base-wide EBS.

CHAPTER 2

PROPERTY DISPOSAL AND REUSE PLAN

The disposal or transfer of the HPS property is a multistage process that involves the following activities:

- The investigation and remediation of contaminated sites as mandated by CERCLA as amended by SARA, and the Resource Conservation and Recovery Act (RCRA) of 1976.
- The preparation of a BCP in consultation with the BCT.
- The preparation of a base-wide EBS for the purpose of documenting the environmental condition of the property to support the transfer or lease of property. In addition, the EBS is used to identify "uncontaminated" parcels as defined by CERCLA Section 120(h)(3) as amended by CERFA. DoD, EPA, and the state must concur with the identification of uncontaminated properties as required by CERFA.
- The land-use designation must be in compliance with the Coastal Management Act and the City's master land-use plan. Implementation of the Coastal Management Act is overseen by the Bay Conservation and Development Commission. The area plan must receive San Francisco Planning Commission (Planning Commission) approval. The zoning must be approved by the Planning Commission, the San Francisco Board of Supervisors, and the Mayor of San Francisco. The final redevelopment plan must be approved by the Planning Commission, the San Francisco Board of Supervisors, and the San Francisco Redevelopment Agency (SFRA).
- The preparation of environmental impact analysis pursuant to the National Environmental Policy Act (NEPA).
- The preparation of a Finding of Suitability to Transfer (FOST) as required by the DoD.

The status of the property disposal planning process, its relation to the environmental programs, property unsuitable for transfer, the strategy for investigation and remediation, and property transfer methods are discussed below.

2.1 STATUS OF PROPERTY DISPOSAL PLANNING PROCESS

The investigation and remediation of contaminated sites as mandated by CERCLA and RCRA are ongoing (see Sections 3.0 and 4.0). This BCP reflects the comprehensive bottom-up program review to

facilitate the return of the facility to the community for beneficial reuse. The status of the HPS base-wide EBS, community reuse plan, environmental impact statement (EIS), and FOST are discussed below.

2.1.1 Status of the HPS Base-Wide Environmental Baseline Survey

The preparation of the base-wide EBS survey for HPS began in mid-1995. The purpose of the EBS was to identify uncontaminated property readily available for transfer and describe the environmental condition of the base. The HPS base-wide EBS was finalized on June 3, 1996 (PRC 1996b).

In the HPS base-wide EBS, all areas and buildings at HPS were classified according to the definitions in the "Standard Classification of Environmental Condition of Property Area Types" (DoD 1995 and PRC 1996b). After the final version of the HPS base-wide EBS was published in June 1996, DoD revised the definitions of the environmental condition of property in the "Addendum to the BRAC Cleanup Guidebook, August 1996" (DoD 1996). The seven area types or categories are now defined as follows:

Category 1 Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).

Category 2 Areas where only release or disposal of petroleum products has occurred.

Category 3 Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.

Category 4 Areas where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken.

Category 5 Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken.

Category 6 Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.

Category 7 Areas that are not evaluated or require further evaluation.

The major difference between the DoD 1995 and 1996 environmental condition property definition is that Category 2 sites are petroleum-only contaminated areas. Also, the word "storage" has been deleted from the definition of the Category 1 through Category 4 areas. The categorization of HPS property detailed in Section 3.4 and Table 3-10 is based on the DoD 1996 BCP guidance and CERCLA 120(h). To date the new HPS property categories have not received approval from the regulatory agencies.

2.1.2 Status of the Community Reuse Plan

The Office of Military Base Conversion (OMBC) is the City of San Francisco agency responsible for the acquisition of HPS property. It is important to note that the OMBC is staffed by the City Planning Department staff and is involved in the day-to-day implementation of the property acquisition. The original preparation and following updates of the community reuse plan included (1) consultation with the Citizens Advisory Committee appointed by the mayor, (2) selection of a land reuse alternative, and (3) implementation of the land use alternative. Table 2-1 lists approximate acreage, proposed land use, associated site information, projected transfer date, transfer mechanism, and land recipient by parcel.

Former Mayor Art Agnos established a Citizens Advisory Committee in 1991 for the Bayview Hunters Point community. This committee was formed to act as a formal citizen sounding board for land use redevelopment. The Citizens Advisory Committee is charged with obtaining public opinion and working with city agencies to ensure that the needs of the community are addressed.

On June 2, 1994, the Citizens Advisory Committee considered several alternative land use plans for HPS. The preferred alternative was the Education and Arts alternative. This plan was reviewed by the Bay Conservation and Development Commission and revisions were made by the OMBC on November 1, 1994. The reuse plan was submitted to the San Francisco Board of Supervisors in March 1995 and was endorsed as the preferred alternative plan (San Francisco Board of Supervisors' Resolution 49-95). The community reuse plan has since been updated to include refinements to the areas previously slated for future development and mixed use, and port priority areas designated for maritime use. Figure 2-1 shows the current reuse plan for HPS from the SFRA as of November 26, 1996 (SFRA 1996). Figure 2-2 shows the generalized land use surrounding HPS (SFPD 1996). The lands surrounding HPS are largely industrial and residential areas.

2.1.3 Status of the Environmental Impact Statement/Report

To implement the community reuse plan, the OMBC and the Citizens Advisory Committee developed an Existing Conditions Report (OMBC 1994) that was issued to the Citizens Advisory Committee in August 1994. The existing conditions report outlines current and future economic and land use conditions for HPS. The report contained information to assist planners in creating an area plan and zoning for HPS.

The decision by Congress to close, relocate, or realign naval bases exempted the Navy from NEPA evaluation requirements. However, BRAC legislation stipulates that NEPA documents required for base disposal and reuse should be completed within 12 months after the Navy receives the final approved reuse plan to the extent practicable. The policy requires that the approved reuse plan be the preferred alternative in the disposal and reuse EIS for the base. Since the preferred reuse alternative has been endorsed by the San Francisco Board of Supervisors in 1995, the Navy and the City of San Francisco have started preparing a base-wide EIS/environmental impact report based on the preferred OMBC alternative. The EIS will fulfill the City's environmental impact report requirements as mandated under the California Environmental Quality Act (CEQA). This joint document is expected to be finalized in November 1997.

2.1.4 Status of the Finding of Suitability to Transfer

A FOST states that a property is suitable for transfer by deed for the intended purposes, if known, because the requirements for CERCLA Section 120(h)(3) have been met for the property. To date, only a draft FOST for Parcel A has been prepared for the transfer of HPS property. A no action CERCLA Record of Decision (ROD) for Parcel A was signed on November 29, 1995. The draft Parcel A FOST was submitted to the Navy and regulatory agencies on June 24, 1996. Information detailing the DoD FOST policy is presented in Section 2.5.1.

2.2 RELATIONSHIP OF DISPOSAL AND REUSE ACTIVITIES TO ENVIRONMENTAL PROGRAMS

Property disposal and reuse activities at HPS are intimately linked to environmental investigation, restoration, and compliance activities. Federal property transfers to nonFederal parties are governed by CERCLA Section 120(h).

CERCLA Section 120(h)(3)(A) requires that the deed for Federal transfer of property on which any hazardous substance was stored for one year or more, known to have been released or disposed of contain a covenant that all remedial actions necessary to protect human health and the environment have been taken. CERCLA Section 120(h)(3)(B) defines the phrase "have been taken" to mean that all remedial actions have been taken if (1) the construction and installation of an approved remedial design has been completed and (2) the remedy has been demonstrated to be operating properly and successfully to the EPA Administrator. The latter, however, does not preclude transfer of the property. Thus, any required remedial or removal response actions must be selected and implemented for such contaminated properties before transfers to nonFederal parties can occur.

HPS cleanup criteria are chosen in part based on the future uses proposed by the City. For example, areas identified by the City for industrial use are proposed to be cleaned up to an industrial use standard, whereas areas slated for residential use are proposed to be cleaned up to a residential use standard, where possible. This may result in some residual contamination, but residual contamination left in place will either be at levels protective of human health and the environment or protective of human health and the environment with certain restrictions in place. The requirement for complying with CERCLA Section 120(h) and the possibility of residual contamination will be factored into the property disposal and reuse process at HPS.

2.3 PROPERTY UNSUITABLE FOR TRANSFER

Because of the presence of either persistent contaminants or contaminants in great volume, some areas of HPS were considered possibly unsuitable for final transfer to the City or any other user. Portions of Parcel E are being considered unsuitable for final transfer because of radiation contamination. Radioactive materials, such as radium dials, gauges, deck markers, and other components of electronic equipment that can be read in the dark, have been disposed of in the Industrial Landfill (IR-01) and the

Bay Fill Area (IR-02) landfill located in Parcel E. Prior to the 1970s, radioluminescent equipment used by the Navy contained radium-226 (^{226}Ra) or strontium-90 (^{90}Sr) that was mixed into a phosphorescent paint base. IR-02 contains an area, approximately 400 feet long by 250 feet wide, where ^{226}Ra-containing materials have been identified; ^{90}Sr materials have not been identified at IR-02. Environmental investigations completed in 1993 show that ^{226}Ra-containing materials were identified to a maximum depth of approximately 9 feet below ground surface in IR-02. Currently, remedial action technologies are still being evaluated for IR-01 and IR-02.

2.4 STRATEGY FOR INVESTIGATION AND REMEDIATION

Completion schedules for RI and feasibility study (FS) reports for Parcels B through E were agreed upon by the Navy and regulatory agencies for on June 7, 1995. These schedules are reflected in the current FFA. The sequence for the completion of the RI and FS reports is Parcel B, D, C, and E which follows the revised acquisition sequence recommended by the OMBC. The submerged HPS property, now formally designated as Parcel F, was also included in the FFA negotiated in 1995. Transfer of the submerged property will occur separately from the transfer of land parcels. Rights of ingress and egress, however, for the submerged portion will be associated with the transfer of Parcels B through E, where necessary and appropriate, to ensure the City's ability to develop a maritime industry, as is now planned.

Schedules for completion of the above-mentioned work are included in Appendix A of the FFA and also in Chapter 5 of this document. It is expected that the FFA will be renegotiated in 1997 to include post-ROD activities. The BCT's intent is to continue developing a strategy focused on the completion of interim removal actions, and initiation of the remedial actions identified in the parcel-based FS reports. These strategy actions allow the environmental response to continue the disposal and reuse of HPS. Several such actions have already been taken and are underway, as discussed in Section 3.1.3.

2.5 PROPERTY TRANSFER METHODS

A memorandum of understanding was signed by the Navy and former San Francisco Mayor Jordan on January 21, 1994 (EFA WEST 1994c). The memorandum between the Navy, City, and the SFRA set out a strategy to transfer HPS property to the City. After the signing of the memorandum, the passage

of the Pryor Amendment and DoD's implementation regulations have allowed for a more favorable agreement for all parties. The memorandum has been set aside in favor of pursuing an agreement to lease in furtherance of conveyance to the City. This agreement will give the City a marketable interest in the property and allow it to develop an interim strategy leading to a long-term revitalization of HPS.

When property is ready for transfer by deed to the City, parcels may be identified for transfer based on a FOST. FOSTs are supported by an EBS and CERCLA RODs for the property being transferred. The FOST review process summary, finding of suitability to lease (FOSL) review process policy summary, and interim leases and licenses are discussed below.

2.5.1 FOST Review Process Summary

A FOST states that the property is suitable for transfer by deed for the intended purposes, if known, because the requirements for CERCLA Section 120(h)(3) have been met for the property, taking into account potential risk of future liability. Two DoD policies have been established for FOSTs (DoD 1994a). These policies relate to properties where releases or disposal have occurred and properties where releases or disposal have not occurred. These policies and properties suitable for early transfer are discussed below.

2.5.1.1 Properties Where Releases or Disposal Have Occurred

For properties where releases or disposal have occurred, the FOST procedure is as follows:

1. Regulatory agencies will be notified upon initiation of the EBS and the FOST. The process of development of these documents will be designed to assure that regulators are provided adequate opportunity to express their views. Regulators will be provided with workable draft documents as they become available, including the EBS and the proposed FOST. Regulatory comments received during the development of these documents will be reviewed and incorporated as appropriate. Any unresolved comments will be included as attachments to the EBS or the FOST.

2. The regulatory agencies and public will be notified of the intent to sign a FOST at the earliest possible time, but no later than 30 days prior to a transfer by deed. The notification will be mailed to the regulatory agencies and will include the draft FOST. Either the EBS report or a summary of the findings of the EBS process that pertain to the parcel to be transferred will be made available to the public. Additional supporting documentation will be made available upon request. The DoD components will address relevant comments from regulatory officials and other appropriate entities that have been received within this 30-day period. After consideration

of all relevant comments (unresolved comments will be included as an appendix to the FOST) and signing of the FOST, the DoD components may proceed to convey the property by deed.

3. The DoD components will provide public notice of the signing of the FOST and will retain the signed FOST, including all regulatory comments and responses on the EBS and/or FOST, in the transaction file (and the Administrative Record, where applicable) and will make the FOST available to the public upon request.

4. Conditions will be included in the transfer deed to accomplish the following:

   a. Ensure environmental investigations and remedial and oversight activities will not be disrupted at any time. Such conditions will include, but are not limited to, the following:

      1. Providing for continued access for DoD (or its designated contractor) and regulatory agencies to monitor the effectiveness of cleanup, perform 5-year reviews, and/or take additional remedial or removal actions

      2. Prohibiting activities that could disrupt any remediation activities or jeopardize the protectiveness of those remedies, such as the following:

         - Surface application of water that could impact the migration of contaminated groundwater

         - Subsurface drilling or use of groundwater unless DoD determines that there will be no adverse impacts on the cleanup process

         - Construction that would interfere with, negatively impact, or restrict access for cleanup work

   b. Limit use as required by the FOST

2.5.1.2 Properties Where Releases or Disposal Have Not Occurred

For properties where releases or disposal have not occurred, the FOST procedure is as follows:

1. Regulatory agencies will be notified upon initiation of the EBS and FOST. The process of development of these documents will be designed to assure that regulators are provided adequate opportunity to express their views. Regulators will be provided with workable draft documents as they become available, including the EBS and the proposed FOST. Regulatory comments received during the development of these documents will be reviewed and incorporated as appropriate. Any unresolved regulatory comments will be included as attachments to the EBS or the FOST.

2. The regulatory agencies and public will be notified of the intent to sign a FOST at the earliest possible time, but no later than 30 days prior to a transfer by deed. The notification will be mailed to the regulatory agencies and will include the draft FOST. Either the EBS report or a summary of the findings of the EBS process that pertain to the parcel to be transferred will be made available to the public. Additional supporting documentation will be made available upon request. The DoD components will address relevant comments from regulatory officials or other appropriate entities that have been received within this 30-day period. After consideration of all relevant comments (unresolved comments will be included as an appendix to the FOST) and signing of the FOST, the DoD components may proceed to convey the property by deed.

3. The DoD components will provide public notice of the signing of the FOST and will retain the signed FOST, including all regulatory comments and responses on the EBS and/or FOST, in the transaction file (and the Administrative Record, where applicable) and will make the FOST available to the public upon request.

4. Conditions will be included in the transfer deed to accomplish the following:

   a. Ensure that a response action or corrective action found to be necessary after the date of transfer by deed will be conducted by the U.S. Government.

   b. Grant the U.S. Government access to the property in any case in which a response action or corrective action is found to be necessary after the date of transfer by deed or such access necessary to carry out a response action or corrective action on adjoining property.

2.5.2 FOSL Review Process Policy Summary

For property at which necessary cleanup actions have not been taken, leasing is a viable means for turning over property for reuse as long as the conditions of the lease ensure that the tenant does not incur any unacceptable risks and that the Navy has access to the property to conduct necessary environmental cleanup actions. A FOSL states that the property is suitable for leasing pursuant to the proposed lease, including the specified restrictions, with acceptable risk to human health and the environment. The DoD policy (DoD 1994b) for FOSLs is as follows:

1. Regulatory agencies will be notified upon initiation of the EBS and the FOSL. The process of development of these documents will be designed to ensure that regulators have an adequate opportunity to express their views. Regulators will be provided with workable draft documents as they become available. Regulatory comments received during the development of these documents will be reviewed and incorporated as appropriate. Any unresolved regulatory comments will be included as attachments to either the EBS or the FOSL.

2. As required by CERCLA Section 120(h)(5), DoD shall notify the state before entering into any

lease that will encumber the property beyond the date of termination of DoD's operations. These notifications shall include the length of the lease, name of the lessee, and a description of the uses that will be allowed under the lease. At National Priorities List sites DoD shall provide this notification to EPA as well.

3. The DoD components will provide public notice of the signing of the FOSL and will retain the signed FOSL, including all regulatory comments on and responses to the EBS and/or FOSL, in the transaction file (and the Administrative Record, where applicable), and will make the FOSL available to the public upon request.

4. The EBS and the FOSL will be provided to each lessee before execution of the lease.

5. Conditions will be included in the lease to ensure the following:

   a. Notification of the existence of an FFA, interagency agreement; or other regulatory agreements, orders, or decrees for environmental restoration (for example, a RCRA permit), if any. Terms of the lease shall not affect the rights and obligations of parties under the FFA; interagency agreement, or other regulatory agreements; orders, or decrees.

   b. Environmental investigations and response oversight and activities will not be disrupted. Such conditions will include, but are not limited to, the following:

      1. Providing for continued access by DoD and regulatory agencies to investigate as required the real property and adjacent property to monitor the effectiveness of the cleanup as required, to perform 5-year reviews as required, and/or to take additional remedial or removal actions as required. At a minimum, such rights shall include all those existing under the Federal Facility Agreement.

      2. Ensuring that the proposed use will not disrupt remediation activities.

   c. Human health and the environment are protected by preventing the inappropriate use of the property.

   d. Compliance with health and safety plans.

   e. Subsequent transactions involving the property shall include such provisions.

6. Model lease provisions will be included in all outleases and subleases unless determined not to be appropriate by the DoD components in consultation with the appropriate EPA or state representative. This determination will be documented by the DoD components.

7. Leases will provide that both the EBS and restrictive conditions in the lease dealing with environmental requirements limiting use will also be included in subleases as they occur. Copies of all subleases will be provided to the DoD components with jurisdiction over the parcel, retained in the transaction file, and made available to the public upon request.

8. Amendments, renewals, or extensions of leases shall not require a new (or updated) EBS or FOSL unless the leased premises change substantially or the permitted uses are to change in environmentally significant ways.

2.5.3 Interim Leases and Licenses

To increase the economic potential of the Bayview Hunters Point community and San Francisco in general, EFA WEST and the HPS BCT have endeavored to implement interim licenses and leases until HPS is transferred to the City. The Navy has entered into several legal agreements allowing interim uses of certain base lands and facilities. The current tenants and current uses of HPS buildings are identified in Table 1-6. Figure 1-4 presents the buildings currently used at HPS.

EFA WEST has issued many interim licenses and two long-term leases since 1994. These licenses and leases are summarized below.

- Buildings 606 and 281 were licensed in 1994 to Skellington Productions, Twentieth Century Fox, for constructing a film production set for the movie "James and the Giant Peach" and for office space. Negotiations began in 1996 to lease Building 606 to the City of San Francisco, who in turn subleased the building to the San Francisco Police Department for office administration and staging space.

- Building 383 was licensed to James Richard of the Aboriginal Black-Man Unlimited for training and educational purposes.

- Dry Dock 4 was leased to Astoria Metals for ship dismantling and related activities. In addition Buildings 274 and 282 were also leased to Astoria Metals.

- Buildings 381 and 307 and the surrounding 5 acres were proposed to be leased to Wedrell James & Son for use as a construction materials recycling site.

In 1996, the Navy completed the addition, preparation of FOSL documentation for 38 additional buildings and areas leased to current HPS tenants that were present prior to 1994.

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TABLE 2-1

PARCEL REUSE SUMMARY
HUNTERS POINT SHIPYARD

Parcel	Size (Acres)	Reuse Priority	Proposed Use[a]	Sites		Transfer Date	Transfer Mechanism	Recipient
				IRP Sites[b]	Buildings and Areas[c]			
A	90	High	Residential, Open Space, Mixed Use, and Research and Development	SI-19, SI-41, SI-43, SI-51, IR-59, and SI-77	Buildings 816, 818, 901, and 906, and several residential units	TBD	Base-wide EBS submitted June 3, 1996; draft FOST submitted June 24, 1996	City of San Francisco
B	66	High	Mixed Use, Research and Development, Open Space, and Cultural	IR-06, IR-07, IR-10, IR-18, IR-20, IR-23, IR-24, IR-25, IR-26, SI-31, IR-42, IR-46[b], IR-60, IR-61, and IR-62	Buildings 109, 111(d), 112(d), 113, 113A, 114(d), 115, 116, 122, 123, 124, 125, 128, 130, 134, 145, 146, 156, 157, 161, and 162; and Submarine Base Area, Waste Disposal Area, Tank Farm, and Dry Docks 5, 6, and 7	TBD	Base-wide EBS submitted June 3, 1996	City of San Francisco
C	77	High	Research and Development, Cultural, Mixed Use, Open Space, and Industrial	IR-27, IR-28[b], IR-29, IR-30, IR-49, IR-57, IR-58, IR-63, and IR-64	Buildings 203, 205, 206, 211, 214, 217, 219, 229, 230(d), 231, 241, 251(d), 253, 258, 270, 271, 273, 275, 278(d), 279(d), 280, 281, 282, 300, 301, and 367; Dry Dock 4; and Scrap Yard north of Building 258	TBD	Base-wide EBS submitted June 3, 1996	City of San Francisco

TABLE 2-1

PARCEL REUSE SUMMARY
HUNTERS POINT SHIPYARD (Continued)

Parcel	Size (Acres)	Reuse Priority	Proposed Use[a]	Sites		Transfer Date	Transfer Mechanism	Recipient
				IRP Sites[b]	Buildings and Areas[c]			
D	128	High	Industrial, Port Priority, Open Space, Cultural, and Mixed Use	IR-08, IR-09, IR-16, IR-17, IR-22, IR-32, IR-33, IR-34[b], IR-35, IR-36, IR-37, IR-39, IR-44, IR-48, IR-53, IR-55, IR-65, IR-66, IR-67, IR-68, IR-69, IR-70 and IR-71	Buildings 274, 302, 302A, 304, 306, 307, 308, 324, 351, 351A, 364, 365, 366, 368, 369, 371, 372, 376, 378, 379, 382, 383, 400, 401, 404A, 405, 406, 407, 408, 409, 410, 411, 413, 414, 417, 418, 423, 424, 435, 436 (d), 437, 438, 439, 500, 503 (d), 505, 508 (d), 519 (d), 523, 525, 530, 606, 709, and S-308; Pickling and Plate Yard, Container Storage Site, Drum Storage and Disposal Site, Crane Dismantling Yard, and various vacant lots	TBD	Base-wide EBS submitted June 3, 1996	City of San Francisco

TABLE 2-1

PARCEL REUSE SUMMARY
HUNTERS POINT SHIPYARD (Continued)

Parcel	Size (Acres)	Reuse Priority	Proposed Use[a]	Sites		Transfer Date	Transfer Mechanism	Recipient
				IRP Sites[b]	Buildings and Areas[c]			
E	135	High	Open Space, Industrial, Port Priority, Research and Development, and Mixed Use	IR-01/21, IR-02, IR-03, IR-04, IR-05, IR-11, IR-12, IR-13, IR-14, IR-15, IR-40, IR-47, IR-52, IR-54, IR-56, IR-72[b], IR-73, IR-74, IR-75, and IR-76	Buildings 507 (d), 508 (d), 511A (d), 521, 527, 707, 708, 810, and 815; Industrial Landfill, Industrial Bay Fill Area, Oil Reclamation Pond, Scrap Yard, Old Commissary Area, Pier 2, Asphalt Batch Plant, and various storage yards Off-site: Buildings 815, 820, 830, 831; and railroad right-of-way	TBD	Base-wide EBS submitted June 3, 1996	City of San Francisco
F	443 Offshore	Low	Not Designated	SI-78	San Francisco Bay	TBD	TBD	TBD

TABLE 2-1

PARCEL REUSE SUMMARY
HUNTERS POINT SHIPYARD (Continued)

Notes:

EBS Environmental baseline survey
FOST Finding of suitability to transfer
IRP Installation restoration program
TBD To be determined

a Based on the proposed land uses as of November 26, 1996 (SFRA 1996); Table 2-1 summarizes specific IRP site proposed reuse; target reuse are as follows: 1) Residential; 2) mixed use: artists studios, living and working studios, galleries, recording studios, real estate and insurance services, business services, research and development, retail trade, health services, printing and publishing, small warehousing and distribution, and conference facilities; 3) open space: active recreation space, shoreline park and trail system, waterfront promenade, and possible wetland restoration; 4) research and development: health services supplies, data processing, telecommunication services, and precision instruments; 5) cultural: public schools, job training, museums, theaters, multimedia and film activities, and working artists; 6) industrial; and 7) port priority: maritime.

b IRP sites include sites investigated for chemical contamination, radioactivity, and underground storage tanks. The 28 site assessment sites discovered in early 1994 and 3 formerly used defense sites were investigated in 1996 and folded into the existing IRP.

For planning and budgeting purposes for Parcels B through E, information for the following multiparcel sites IR-38 (Building 500, former U.S. Naval Radiological Defense Laboratory Buildings 707 and 708, and surrounding areas); IR-45 (Steam Line System); IR-50 (Storm Drain System and Sanitary Sewer System); and IR-51 (Former Transformer Sites), has been consolidated into IR-46 for Parcel B; IR-28 for Parcel C; IR-34 for Parcel D; and IR-72 for Parcel E. In addition, formerly used defense sites AOC-75, AOC-76, and AOC-78 are listed as areas of concern site IR-75, IR-76, and IR-78, respectively.

c Only buildings investigated under the IRP are listed. Buildings that have been demolished are denoted with a "(d)".

CHAPTER 3

INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS

This chapter discusses the current installation-wide status for the environmental restoration program, compliance programs, natural resources, the environmental condition of the property, and community involvement. Chapter 4 discusses the current installation-wide strategy.

3.1 ENVIRONMENTAL RESTORATION PROGRAM STATUS

The Navy, EPA, and Cal/EPA signed the current FFA on June 7, 1995. The FFA documents the Navy's intended actions and schedule pertaining to environmental investigation and remediation at HPS pursuant to the following authorities:

- Section 120 of CERCLA
- Sections 6001, 3008(h), 3006, and 3004(u), and (v) of RCRA
- NEPA
- The Defense Environmental Restoration Program
- Applicable state laws

The FFA establishes a procedural framework and schedule for ensuring that the environmental impacts associated with past and present activities at HPS are thoroughly investigated and appropriately remedied to protect human health and the environment. The FFA is also designed to aid in the exchange of information and to ensure the adequate assessment of potential injury to natural resources.

Section 6.1 of the FFA requires compliance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), CERCLA guidance and policy, RCRA guidance and policy, Executive Order 12580, and applicable state laws and regulations. Under Section 6.2 of the FFA, the Navy agreed to undertake, seek adequate funding for, fully implement, and report on the following tasks:

- **Conduct Preliminary Assessments/Site Inspections (PA/SI):** PA/SI investigations are conducted to determine if a risk to human health or the environment is posed in areas that have been identified as potentially contaminated with hazardous materials. The PA process involves interviews with facility personnel, reviews of available documentation, and site visits. If further investigation is warranted, the site moves on to the SI phase of investigation. The SI incorporates the findings of the PA and involves the collection of limited samples. The findings are documented in SI reports. If the PA or SI determines that there is little likelihood of risk and EPA and Cal/EPA concur, no further investigation is conducted for that area. If risk is likely, the site is designated an IR site and is further investigated under the RI.

- **Conduct RI:** An RI is the CERCLA-required study of a site where risks to human health and the environment are likely. Such sites were either previously investigated during the PA or SI or the site is assumed to potentially pose a risk, thereby bypassing the PA or SI investigation. One of the main purposes of an RI is to characterize the nature and extent of contamination at a site. The RI involves the collection and analysis of soil and groundwater samples. The RI report addresses the nature and extent of contamination and the estimation of risk to human health and the environment posed by chemicals found at the site during the SI and RI investigations.

- **Conduct FS:** An FS is performed for IR sites where contamination poses an unacceptable risk to human health or the environment using data obtained during the RI. Different remedial technologies that could reduce the risk at the site to acceptable levels are compared. The FS should supply enough information to accomplish the following tasks: (1) allow remedial technologies to be compared based on their probable ability to protect human health and the environment; (2) determine the short-term and long-term effectiveness of the remedial technologies; (3) evaluate the effectiveness of the remedial technologies to bring the site into compliance with environmental regulations; (4) determine the extent to which the technology will reduce the toxicity, mobility, or volume of the contamination; and (5) assess how easily the technology can be implemented and how much the technology will cost. FS work is typically conducted concurrently with the RI.

- **Prepared Proposed Plan:** The proposed plan summarizes the findings of the RI and FS and proposes preferred alternatives from those evaluated in the FS. The proposed plan is issued for pubic comment. At this point, an agreement on the remedy and schedule for executing the remedy documented in an ROD. The ROD takes into account public comments and community concerns and includes the Navy's responses to those comments.

- **Operation and Maintenance of Response Actions:** The remedies selected in the proposed plan will be monitored to ensure that they are executed and maintained. Remedies or response actions may include source removals, treatment of contaminated soil and groundwater, capping of areas of soil contamination, or groundwater monitoring.

Under Section 8.1 of the FFA, all parties agreed to the deadlines set forth in the FFA for RI and FS reports, proposed plans, and the RODs for Parcel (A through E) at HPS. A ROD schedule for Parcel F has not yet been determined. The current schedule for completion of these documents for each parcel is listed in Chapter 5 of this document.

HPS has completed the PA/SI investigations for Parcels A through F and is currently finalizing the RI phase of IRP. To date, SI reports have been completed for Parcels A, B, C, D, and E. RI reports have been prepared and distributed for Parcels A, B, C, and D. The draft Parcel E RI report is scheduled for distribution in mid-1997. The FS was determined not to be necessary for Parcel A. The Parcel B FS was finalized in November 1996 and the draft final Parcel D FS was submitted in January 1997. The draft FS reports for Parcels C and E are scheduled for distribution on February 27, 1997, and July 28, 1997, respectively. The decision document, the no action-ROD for Parcel A, was signed on November 28, 1995. The Parcel B ROD is estimated to be finalized in the first half of 1997. The decision documents or ROD in which a remedial action is selected have not been prepared for the remaining parcels. The RODs for Parcels D, C, and E are in preparation and are estimated to be finalized in mid-1997; late 1997; and mid-1998, respectively. These schedules are presented in Figure 5-1.

The chronology of investigations and site groupings, IRP sites, early action sites, identified chemical contamination sites, radiological work, unexploded ordnance, and petroleum corrective action plan at HPS are discussed below.

3.1.1 Chronology of Investigations and Site Groupings

Approximately 300 project reports that document environmental investigations and cleanups at HPS is presented in Appendix B of this document. The reports date as far back as 1972.

The Navy Assessment and Control of Installation Pollutants was the Navy's original environmental program. This program consisted of three phases: (1) an initial assessment, (2) a confirmation study that consisted of the verification and characterization steps, and (3) the remedial action measures. The first phase of the program, which involves the initial assessment study, was completed in 1984. The initial assessment study identified 12 areas to be investigated for possible hazardous waste materials

because of disposal or spills. The investigation identifies six sites recommended for further investigation, three sites recommended for mitigating actions (for example, drum removal), and three sites recommended for no further investigation.

The second phase of the program, which included the verifications step and the characterization step of the confirmation study, was conducted for the 12 sites studied under the initial assessment. As a result of the verification step, 11 sites were recommended for the characterization step as follows: the six sites recommended for further study by the initial assessment, four sites from the initial assessment recommended for mitigating actions or no investigation, and one additional site not studied during the initial assessment. In 1989, HPS was placed on the National Priorities List as a Superfund site.

Eleven sites proposed for the characterization step of the confirmation study were reclassified within the RI/FS framework of CERCLA into operable units based on similar types of contaminants. An operable unit is defined as an area where action is taken as one part of an overall site cleanup. At HPS, the operable units were determined according to the locations of sites, similarities in investigations or remediation strategies, and similarities in chemical conditions. The 11 sites from the confirmation study were either renumbered or combined (Sites 1 through 10), and new sites from the Triple A litigation were added (Sites 11 through 18). Sites 1 through 10 were placed into operable units I through IV; and Sites 12 through 18, undiscovered sites, and underground storage tanks (UST) were placed in operable unit V. From this point on, all sites were placed under the IRP and referred to as IR and SI sites (Figure 3-1).

Following the initial RI, the use of operable units was found to be unworkable. The initial assumption that each operable unit could be completely characterized independent of adjacent sites proved impractical. With operable units, problems could not be resolved that resulted from multiple sites with diverse contaminants in conjunction with the various utilities (for example, storm lines and sanitary sewers) serving as both contaminant sources and pathways. Additionally, at this time under the initial FFA, the Navy's intent was to keep HPS as an active naval facility. The focus was subsequently changed, however, to expedite the restoration and transfer of HPS for reuse because of the Pryor Amendment. These factors indicated the need to restructure the operable units to expedite the remediation process. The Navy and the regulatory agencies used two approaches: (1) division of the site into geographic parcels and (2) review of the previously designated operable units for possible

interim actions through alternative selection reports. The process of redefining the sites began in January 1992, and the designation of Parcels A through E was formally submitted in April 1992. The geographic parcels are shown in Figure 1-2.

A site-wide inventory was conducted in October 1990 for HPS sites previously not adequately assessed. These sites included buildings, utility lines, equipment that contained PCBs, and other sites designated as potentially contaminated. A PA was conducted, and 40 sites (PA-19 through PA-58) were recommended for SI work. The results of the SI indicated that 14 sites posed no human health risk; therefore, no further investigation was proposed (HLA 1994b, 1994c, 1994d, and 1994h). The remaining 26 sites, however, were recommended for an RI. PAs were also conducted on the utility systems at HPS (HLA 1990). The primary utilities include the steam lines (PA-45) and the storm drain and sanitary sewer systems (PA-50). Because further RI work has been recommended for these utility systems, they continue under the IRP as SI-45 and SI-50, as further discussed in Section 3.2.12.

HPS has undergone a complex history in relation to its sites. Figure 3-1 shows the chronology of investigations and grouping of sites from operable unit designations to the current grouping by geographic parcels. The parcel designation is discussed in Section 4.1 of this BCP. Figure 3-1 shows the evolution of the site numbering scheme as it has progressed through the various previous investigations, starting in 1984. The figure illustrates the sequence of identifiers for a site as it progresses through the PA to the SI to the RI stages, at which point it is given a number under the IRP. Also depicted are sites evaluated for interim actions through the use of alternative selection reports. Alternative selection reports evaluate the need of a temporary remedy or interim actions because contamination related to point sources represented an impending threat to human health and the environment.

The last addition to the IRP were sites that underwent a site assessment (SA) of any potential releases in the last 10 years and were recommended for a combined SI and RI (HLA 1994a). These SA sites have been investigated and are listed in Table 3-1. Details of the site assessment are described in Section 3.1.2 below.

3.1.2 Installation Restoration Program Sites

At HPS, 78 sites, including 64 IR and 14 SI sites, have been identified under the Navy's IRP. For planning and budgeting purposes for Parcels B through E, information for the following multiparcel sites IR-38 (Building 500, former U.S. Naval Radiological Defense Laboratory Buildings 707 and 708, and surrounding areas); IR-45 (Steam Line System); IR-50 (Storm Drain System and Sanitary Sewer System); and IR-51 (Former Transformer Sites), has been consolidated into IR-46 for Parcel B; IR-28 for Parcel C; IR-34 for Parcel D; and IR-72 for Parcel E. In addition, formerly used defense sites IR-75, IR-76, and IR-78 are listed as areas of concern (AOC) site 74 (AOC-74),AOC-75, AOC-76, and AOC-78, respectively. With the exception of the railroad right-of-way (IR-52), AOC-75, AOC-76, and AOC-78 all of the IRP sites are within the current boundaries of HPS. The locations of the IRP sites and their other IRP designations such as UST, radiation, and SA sites, if applicable, are shown in Figure 3-1.

USTs at HPS stored fuel oil, solvent, gasoline, brine, waste oil, and water. At this time, the Navy has removed 36 USTs and 10 USTs have been closed in place. As a result of leakage and contamination at 28 UST sites, 25 sites have been incorporated into the IRP, and the 3 remaining UST sites have been recommended for no further action. USTs sites requiring further investigation were incorporated into the IRP during the RI/FS phase of the CERCLA process.

Concurrent with the ongoing RIs the Navy is evaluating sites used for radiological research by the NRDL for radioactive contamination. Submittal of the draft final Phase III radiation investigation field work plan was delayed following regulatory agency requests to include complete historical documentation. The Navy submitted the final draft of the field work plan to the regulatory agencies on October 15, 1996. The initial radiation field screening of the NRDL buildings was initiated in December 1996. Twenty-eight sites, including former NRDL buildings not located within existing IR or SI sites, will be screened for radiation as shown in Figure 3-2 and discussed in Section 3.1.5. Additionally, the Navy submitted to the regulatory agencies a technical memorandum that addresses the tidal area surrounding the Bay Fill Area in IR-02 in June 1996 where the presence of radium dials were detected. The Navy prepared an abbreviated FS in 1996 to evaluate the remedial alternatives for the

removal of radium dials in the Bay Fill Area. The BCT will decide the follow-up actions necessary after review of the abbreviated FS.

An SA was completed in 1994, and the results are reported in the "Final SA Report, Potentially Contaminated Parcels B, C, D, and E, Naval Station Treasure Island, Hunters Point Shipyard" (HLA 1994a). Field investigations were conducted on 75 SA sites that comprised a total of 110 buildings and areas. Further investigation because of observed or potential releases of chemicals to the environment were recommended for 28 of the 75 SA sites. These 28 SA sites were incorporated into the parcel-specific RI/FS process.

The RI and FS reports will be prepared for each individual parcel. These reports will incorporate all information obtained for IRP sites, UST sites, radiation sites, and SA sites located within each parcel. Facility-wide investigations, such as the ecological assessment and air sampling, will also be incorporated into the RI/FS parcel-specific reports.

3.1.3 Early Action Sites

Some sites at HPS clearly contain levels of contamination that exceed regulatory limits or that could pose an immediate threat to human health or the environment. In such cases, if known technologies exist that can address the contamination, the BCT has recommended the site for early action (see Table 3-2). Such technologies include soil excavation or pumping of groundwater to remove contaminants. Several interim removal actions have already been conducted at HPS. The following early actions have been implemented or are in progress:

- **PCB-Impacted Soil (IR-08):** In 1986, 1987, and 1989, the Navy conducted investigations at IR-08 to characterize the distribution of PCBs in soil. Elevated concentrations of PCBs were detected in soil from the areas south and southeast of former Building 503 and extending eastward across Hussey Street. To mitigate the potential threat posed by the presence of PCBs at these concentrations, an interim removal action was performed in 1988. Soil containing PCBs at concentrations greater than 25 milligrams per kilogram (mg/kg) was excavated and disposed of off-site. The 50- by 150-foot excavation area extended from 3 to 10 feet below ground surface and generated approximately 1,255 cubic yards of PCB-impacted soil.

- **Parcel A Investigation by Excavation:** To expedite the determination of the extent of contaminant source and reduce contaminant in soil for Parcel A, investigation by excavation was performed. One thousand cubic yards of soil was excavated in 1993 at SI-19, SI-41, and SI-43. In 1995, 200 cubic yards of soil was excavated in at IR-59 Jerrold Avenue Investigation.

- **Sandblast Grit Fixation Program:** Sandblast operations were conducted at numerous locations at HPS and generated grit that may have contained paint chips, heavy metals, and oil. Between 1991 and 1995, approximately 5,000 tons of sandblast grit were collected and consolidated at Parcel E. The grit was sent to an asphalt plant where it was recycled for manufacture of asphalt for roads. This interim removal action was completed in 1995 (PRC 1996d).

- **Pickling and Plate Yard (IR-09):** Between November 1994 and February 1996, interim removal actions were performed at IR-09 under the 1991 interim removal action plan (RAP). These interim removal actions included removing plate storage and drying racks; dismantling and removing three steel pickling tanks, including the brick lining; removing zinc chromate primer residue from racks and structures; removing the overhead crane structure; removing vegetation coated with primer residue; and demolishing and disposing of the various structures and ASTs. The interim removal action was completed in early 1996. The construction summary report documenting the interim removal action at IR-09 was submitted in May 1996.

- **Exploratory Excavations:** At various IRP sites in the SI phase, exploratory excavations were proposed to remove limited volumes of soil meeting the following criteria: (1) a suspected release of hazardous substances indicated by stained surface soil, asphalt, or concrete or a confirmed release of hazardous substances at concentrations exceeding interim removal action screening levels; (2) site conditions that would not require major structural demolition to excavate areas requiring remediation; and (3) an estimated volume of impacted soil of less than 500 cubic yards and a depth not exceeding the site groundwater or 10 feet below ground surface, whichever is shallower. The sites proposed contain surface soil nonpetroleum-related contamination. Eighteen sites met the exploratory excavation criteria and were included in the draft final EE/CA submitted March 1996 and final action memorandum in July 1996. Exploratory excavation removal activities were initiated in August 1996 and will continue through early 1997. The removal action summary report is estimated to be completed in May 1997.

- **Storm Drains:** Storm drain cleanout was proposed to reduce the potential for migration of chemicals found in storm drain catch basin sediments to the San Francisco Bay. Additionally, poor integrity areas of the storm drain system are proposed to be repaired to minimize the potential for contaminant migration. The progress is as follows: (1) the geographic information system map showing reaches of the storm drain system with potential for infiltration of contaminated groundwater was completed and (2) the sampling locations were identified and agreed upon. All contaminated sediment would be removed from the entire storm drain system, except in Parcel A which was completed in 1995, by using high pressure water spray equipment. The length of the storm drain line to be

cleaned is estimated to total approximately 100,000 linear feet. All removed rinse water and sediments would be treated on site by phase separation.

Storm drain interim removal action activities began in September 1996 and consisted of initial reconnaissance and setup for video surveying. The Navy completed construction of the treatment plant necessary to perform on-site treatment by phase separation on the rinse water and sediments. Removal of sediments from the storm drain lines commenced in early November 1996 and will be completed by June 1997. The removal action summary report is estimated to be completed in September 1997.

- **Groundwater Plumes:** Remediation of groundwater plumes in Parcels B, C, and E were proposed under this interim removal action. Data for each identified plume were compiled and screened against identified screening levels, and the extent of the plumes was determined. A list of alternatives for consideration in the EE/CA was completed. The EE/CAs for the plumes identified in Parcels B and C have been halted and will be incorporated into the respective parcel FS reports. Thus, a cohesive and comprehensive approach for groundwater at Parcels B and C will be presented in the respective FS reports. Only the EE/CA for the Parcel E groundwater plume in the industrial landfill IR-01/21 has been completed and is being implemented as an early action.

  The draft final EE/CA and the final action memorandum concerning the groundwater plume in the industrial landfill IR-01/21 was submitted July 1996 and September 1996, respectively. The final action memorandum reflects regulatory agencies comments. Preliminary field testing of the area by cone penetrometer testing and HydroPunch groundwater sampling was conducted in October and November 1996 to evaluate soil and groundwater conditions along the alignment proposed for the sheet piling portion of the action. Installation of sheet piling as part of the groundwater containment system is expected to be completed in mid-1997. The construction summary report is estimated to be completed in September 1997.

- **Tank Farm (IR-06):** The purpose of the IR-06 Tank Farm interim removal action conducted in 1993 was to remove the ASTs and associated piping. All of the tank facilities, including the tanks, pumphouses (Buildings 111 and 112), support racks, associated piping within the bermed areas, and approximately 140 cubic yards of soil were removed as part of the interim removal action. The site was graded, and a liner was installed as a temporary cap. Additional soil remediation is currently planned under a separate interim removal action at IR-06. The Navy plans to remove approximately 2,600 cubic yards of soil contaminated with petroleum, lead, PCBs, and polynuclear aromatic hydrocarbons (PAH). The soil will be excavated and disposed of off-site. The revised final EE/CA for the interim removal action was submitted on August 1996 and the draft action memorandum in September 1996. The actual extent of soil removed from IR-06 will be reported in the remedial design report. The interim removal action is planned for mid-1997 in addition to a pilot study for bioremediation of the petroleum hydrocarbon-contaminated soil. The removal action summary report is estimated to be completed in September 1997.

- **Oil Reclamation Ponds (IR-03):** The Navy completed and submitted the draft final EE/CA and Final Action Memorandum for IR-03 to the regulatory agencies in October 1996. Sheet pilings will be installed as part of a containment system at IR-03 to keep floating product from migrating to the San Francisco Bay. The IR-03 removal action is expected to be completed in mid-1997. The removal action summary report is estimated to be completed in September 1997.

- **Dry Dock 4 Sediment Removal:** An EE/CA was initiated to evaluate two alternatives designed to reduce the threat to the environment posed by the sediments in Dry Dock 4. The BCT has decided to move forward with removal of sediments from inside the Dry Dock 4 tunnels. Implementation of this removal action will be documented in an addendum to the storm drain sediment removal action memorandum. As part of the waste disposal activities, the Navy has agreed to analyze the sediment samples for organotins and metals. The removal action will take place in mid-1997. The removal action summary report is estimated to be completed in September 1997.

The following activities have been proposed during the RI, but could not implemented as an early action due to funding shortages. The remaining interim removal actions will be included as part of the final remedial actions for each specific parcel.

- Parcel B, C, D and E Steam Line System removal
- Parcels B and D Fuel Line removal
- Parcel B Submarine Base Area soil removal (IR-07)
- Parcel B Buried Metal Object removal (IR-42)
- Parcel D Building 364 radiation removal (IR-09)
- Parcel D Building 521 soil and floating product removal (IR-11)
- Parcel D Disposal Trench Area soil removal (IR-12)
- Parcel D Oily Liquid Waste Pond soil and floating product removal (IR-14)
- Parcel D Incineration Tank soil and floating product removal (IR-15)
- Parcel E Radium Dial treatability study (IR-02)
- Parcel E Tanks S-505 soil and floating product removal (IR-02)
- Parcel E Railroad Right-of-Way soil removal (IR-52)

3.1.4 Identified Chemical Contamination Sites

Areas of soil and groundwater contamination have been identified through the PA/SI investigations and portions of the parcel-specific RIs at HPS. Soil and groundwater contamination at each parcel are discussed below. Figures 3-8 and 3-9 show areas in Parcels B, D, C, and E where soil and groundwater, respectively, have been impacted by chemicals using screening criteria of the parcel-specific RI report. Areas of soil CERCLA contamination were estimated using EPA Region IX preliminary remediation goals (PRG) for residential soils (EPA 1996) and Hunters Point ambient levels (HPAL) (PRC 1995f) as screening tools. Areas of groundwater CERCLA contamination were estimated using EPA national ambient water quality criteria (NAWQC) for the protection of saltwater aquatic life and Hunters Point groundwater ambient levels (HGAL) as screening tools. Areas of soil and groundwater petroleum hydrocarbon contamination were estimated using the screening criteria used in the Parcel B RI report (PRC 1996a). For purposes of this BCP, areas with detected concentrations of trichloroethene (TCE) were mapped to represent volatile organic compounds (VOC) contamination in groundwater because NAWQCs were not available for VOCs. The screening criteria used are overly conservative and may not reflect the risk to human health or the environment at HPS.

3.1.4.1 Parcel A

The primary types of chemical contaminants detected in soil and groundwater in Parcel A include semivolatile organic compounds (SVOC), pesticides, total petroleum hydrocarbons (TPH) as diesel and motor oil, and metals. Identified sources of these chemicals include (1) the former drum storage area at Buildings 818 and 816 (SI-41), (2) sandblast material used as fill in parking medians at Building 901 (SI-19), (3) releases to soil during pesticide formulations at building 906 (SI-43), (4) motor oil in uplands groundwater (unknown source at IR-59), and (5) sandblast grit contaminated with pesticides and metals in IR-59 Jerrold Avenue Investigation (PRC 1995a). Soils containing elevated levels of contaminants were excavated at SI-41, SI-19, SI-43, and IR-59 Jerrold Avenue Investigation and disposed of off-site. Contaminated soil was excavated until confirmation samples of the remaining soil are protective of human health. Information regarding the clean up of Parcel A, in addition to a letter of concurrence from EPA and the State of California stating that all necessary work at Parcel A has been completed, will be documented in the draft final Parcel A FOST expected to be submitted in early 1997.

Currently, no contaminated sites remain in Parcel A. The no action ROD was signed on November 29, 1995. The draft FOST was submitted in mid 1996. Transfer of Parcel A is expected in late 1997.

3.1.4.2 Parcel B

The primary types of chemical contaminants detected in soil and groundwater in Parcel B include volatile organic compounds (VOC), SVOCs, pesticides, PCBs, TPHs as gasoline and diesel, and metals (PRC 1996a). Identified sources of these chemicals include (1) leaking sumps containing VOC solvents; (2) leaking fuel (gasoline and diesel) lines, ASTs and USTs; (3) releases of waste oil to the ground surface; (4) sandblast material; (5) overturned or leaking drums containing VOCs, fuel, or oil; (6) VOCs and metals washed into floor drains that discharge to the storm drain system; and (7) leaking PCB-containing transformers (see Figures 3-12 and 3-13).

Petroleum hydrocarbon plumes in groundwater are located at a former tank farm (IR-06) and along the shoreline near Building 130; floating hydrocarbons may be present locally, especially near source areas such as the fuel pipelines along the shoreline. Solvent plumes are emanating from Buildings 123 and 134. DNAPLs are present beneath solvent sumps in Building 134. These areas of concern are addressed in the FS report and will be mitigated during implementation of the chosen soil and groundwater alternatives to be documented and agreed to in the ROD for Parcel B. Sites containing areas contaminated with petroleum hydrocarbons only in soil and/or groundwater are recommended for inclusion in the petroleum corrective action plan which will be determined for all parcels in 1997 (see Section 3.1.7).

The Parcel B RI report was finalized in June 1996 and the Parcel B FS report was finalized in November 1996. The draft Parcel B ROD was submitted in October 1996. The ROD for Parcel B is estimated to be finalized in the first half of 1997.

3.1.4.3 Parcel C

The primary types of chemical contaminants detected in soil and groundwater at Parcel C include VOCs, SVOCs, pesticides, PCBs, TPH as gasoline and diesel, and metals (see Figures 3-14 and 3-15). Identified sources of these chemicals include (1) leaking sumps containing VOCs and SVOCs,

(2) leaking fuel (gasoline and diesel) lines and USTs, (3) sandblast material, and (4) leaking PCB-containing transformers (HLA 1994b).

Petroleum hydrocarbon and solvent plumes in groundwater are located in the eastern half and west-central portions of Parcel C. Benzo(a)pyrene, an indicator of total PAH contamination in soil both horizontally and vertically, was detected in the vicinity of Building 203 at IR-29 and Buildings 211, 231, and 272 at IR-28. Sites containing areas contaminated with petroleum hydrocarbons only in soil and/or groundwater are recommended for inclusion in the petroleum corrective action plan.

Floating hydrocarbons are present near some UST and fuel pipeline source areas. Near Buildings 231, 251, 253, 271, and 226, DNAPL presence is suspected, but not confirmed to be present.

The draft Parcel C RI report was submitted in November 1996. The draft FS report for Parcel C was submitted in February 1997.

3.1.4.4 Parcel D

The primary types of soil and groundwater contaminants in Parcel D include VOCs, SVOCs, PCBs, TPHs as gasoline and diesel, and metals (see Figures 3-9 and 3-10). Identified sources include (1) leaking sumps and floor drains containing VOCs, (2) leaking USTs, (3) leaking steam lines containing waste oils, (4) releases of waste oils and petroleum hydrocarbons to the ground surface, (5) sandblast material, (6) leaking pickling tanks containing hexavalent chromium, and (7) leaking PCB-containing transformers (HLA 1994c).

Metals and petroleum hydrocarbons in soil are located throughout Parcel D. The largest area in Parcel D affected by Aroclor-1260 is in the vicinity of IR-08. Benzo(a)pyrene, an indicator of total PAH contamination in soil both horizontally and vertically, was detected at IR-36, IR-37, IR-33, and IR-34. Metals in groundwater at concentrations above screening criteria are widespread at Parcel D. DNAPL contamination is suspected, but not confirmed to be present, in the vicinity of IR-08, IR-36, and IR-36. Petroleum hydrocarbons in groundwater are present in the vicinity of IR-08, IR-33, IR-36, and IR-36. These areas of concern are addressed in the FS report and will be mitigated during implementation of the chosen soil and groundwater alternatives agreed to in the ROD for Parcel D.

Sites containing areas contaminated with petroleum hydrocarbons only in soil and/or groundwater are recommended for inclusion in the petroleum corrective action plan.

The Parcel D RI report was finalized in December 1996. The draft final Parcel D FS report was submitted in January 1997.

3.1.4.5 Parcel E

The primary types of chemical contaminants detected in soil and groundwater in Parcel E include VOCs, SVOCs, TPHs, PCBs, and metals (see Figures 3-16 and 3-17). Identified sources include (1) debris zones in the industrial landfill, (2) former oil reclamation ponds, (3) leaking ASTs and USTs, (4) surface waste disposal sites (for example, waste oils and PCBs), (5) sandblast waste, and (6) scrap yards (HLA 1994d).

Petroleum hydrocarbons and low-level solvent plumes in groundwater are located throughout Parcel E (for example, in the industrial landfill and in surface waste disposal areas). Floating hydrocarbons are located at the former oil reclamation ponds and aboveground waste oil tanks. The interim removal actions at IR-01/21 and IR-03 will address immediate groundwater and soil concerns, respectively, in these areas. Sites containing areas contaminated with petroleum hydrocarbons only in soil and/or groundwater at concentrations exceeding screening criteria are recommended for further evaluation during the petroleum corrective action plan.

The draft Parcel E RI report is in preparation and is expected to be submitted to the agencies in mid-1997.

3.1.4.6 Parcel F

The facility-wide draft Phase 1B ERA report was submitted in two volumes. Volume 1, Part 1, and Volume 2, nature and extent findings, were submitted to the agencies in September 1996. Volume 1, Part 2, risk assessment findings, was submitted to the agencies in November 1996. The purpose of the Phase 1B ERA was to collect data in order to (1) determine the nature and extent of offshore contamination at HPS, (2) determine the risk to aquatic receptors posed by offshore contamination using quantitative and qualitative measurements, and (3) further define the risk posed to terrestrial

receptors from onshore contamination. The investigation of Parcel F thus far is equivalent to an RI phase of investigation. Discussions on approach and schedule of Parcel F through the ROD will take place in early 1997.

3.1.5 Radiological Work

The Navy has various programs to ensure that radioactive materials are used and disposed of properly at its facilities. Radioactive materials used at HPS are most commonly covered by the General Radioactive Material Program (GRMP). The Navy's GRMP involves facilities and equipment used for radiological work not associated with nuclear-powered warships. GRMP includes radiographic sources used for nondestructive testing, radiological sources used for calibration, electrical instruments containing radiological sources, and radium illumination dials and gauges that potentially used during the former NRDL activities. Areas of general radioactivity at HPS are currently under study as part of the IRP.

The investigation of radiation sites at HPS consists of three phases, Phases I, II, and III. Phase I was a surface confirmation radiation survey (SCRS) conducted in 1991 that included air and soil sampling. Phase II was conducted in 1994 and to evaluate the subsurface distribution of radioactive point sources and occurrences detected during the SCRS in Parcel B, C, and D. Phase III will be conducted in early 1997 and will address radiological issues associated with former operations at HPS and the licensing of radioactive material by the Nuclear Regulatory Commission (NRC) in support of NRDL activities. Phases I, II, and III are discussed in more detail below.

3.1.5.1 Phase I Radiation Investigation

Phase I of the radiation investigation effort at HPS is summarized in the SCRS report for the SCRS conducted in 1991. This survey was conducted to confirm the presence of a surface radiation anomaly detected in 1990 that was thought to result from radium-containing instruments buried in the landfill (HLA 1993d). The presence of the surface radiation anomaly was confirmed and found to consist of dials and instruments painted with radioluminescent paint in the landfill.

Radiation surveys performed during the 1991 SCRS at HPS included the following sites:

- Parcel B: Sub-Base Area (IR-07) and Waste Oil Disposal Area (IR-18)
- Parcel C: Room 105 in Building 214 (IR-28) and Building 253 (IR-28)
- Parcel D: An area just outside and adjacent to Buildings 364 (IR-33) and 351A (IR-34)
- Parcel E: Industrial Fill Area (IR-21) and Bay Fill Area (IR-02)

The SCRS identified elevated gamma activity at Parcels B, D, and E sites. These sites were included in Phase II investigation at HPS (PRC 1992).

3.1.5.2 Phase II Radiation Investigation

Phase II of the radiation investigation consisted of evaluating (1) the subsurface extent of the surface anomalies discovered in the Industrial Fill Area (IR-01/21) during the SCRS at Parcel E, (2) the nature of the radioactive anomalies in Parcel B at IR-07 and IR-18, and (3) the nature of the radioactive anomalies and in an area near Building 364 in IR-33 at Parcel D.

The results of the IR-01/21 Phase II study indicated that the surface anomalies at IR-01/21 consisted of only scattered radium dials on the ground surface. The largest concentration of radium dials was located at IR-02 in an area measuring 600 by 600 feet. Dials were located from the surface to 9 feet below ground surface. Sampling results did not reveal any radioactive contamination in groundwater.

EPA investigated the source of the elevated Radium-226 (^{226}Ra) at IR-07 and IR-18. The soil was found to contain minerals with naturally radioactive isotopes of the uranium and thorium decay series, including ^{226}Ra (EPA 1995; PRC 1995e). The 1995 technical memorandum prepared during Phase II recommended that no further radiological investigations at IR-07 and IR-18 because the source of radioactive materials was naturally occurring radioactive materials in fill materials at IR-07 and IR-18 (PRC 1995e).

The Parcel D sites were formerly used for subsurface containment of low-level radioactive waste generated in Building 364 in IR-33. Gamma count for samples rates collected from asphalt and concrete surfaces in the area exceeded the expected facility-wide background rate (PRC 1992). One asphalt sample collected at the location of a Cesium-137 (^{137}Cs) spill in the area contained the highest

gamma count rate measured in the field. The area of ^{137}Cs-contaminated asphalt was removed in 1996 and disposed of off-site.

3.1.5.3 Phase III Radiation Investigation

The purpose of Phase III of the radiation investigation at HPS is to address radiological concerns regarding the former use, storage, and disposal of radioactive materials associated with past NRDL operations at HPS. The ultimate goal of this phase of investigation is the eventual release of all remaining buildings and sites for unrestricted use.

Based on the recommendations of Navy Radiation Affairs Support Office's (RASO) representative, radiation surveys are to be conducted under Phase III at sites where residual contamination was known to exist or where radiation surveys were not previously performed as part of the radioactive material license termination process (for example, outside buildings where radioactive materials were used or stored). Buildings and sites that met the following conditions were excluded from the Phase III investigation:

- The building or site was surveyed by NRDL, RASO, Atomic Energy Commission, or NRC personnel and released for unrestricted use
- The radioactive material license for the building or site was terminated

Surveys at the following NRDL sites and buildings were not recommended because radiation surveys were performed as part of the radioactive material license termination process or as part of a previous RASO survey: Parcel B, Buildings 113A and 146; Parcel C, Buildings 214 and 253; Parcel D, Building 365; and Parcel E, Buildings 815 and 816 (PRC 1996r). Surveys at the following NRDL sites and buildings were not recommended because no radioactive materials were used or stored at the buildings or because no evidence suggests the potential for residual contamination: Parcel B, Buildings 113 and 114; Parcel C, Buildings 274, 313, and 313A; and Parcel E, Buildings 708, 820, 830, and 831 (PRC 1996r).

Former NRDL sites recommended by RASO to be surveyed as part of the Phase III radiation investigation are Parcel D, Buildings 351, 351A, 351B (currently Building 366), and 364, and Parcel E, Former Buildings 506, 507, 508, 509, 510, 510A, 517, 529, and 707 (PRC 1996r). The

radiation surveys for Phase III sites are scheduled to be conducted from December 1996 through March 1997. The results of the Phase III investigation will be submitted as an appendix to the Parcel E RI report.

3.1.6 Unexploded Ordnance

Available records do not indicate the presence of unexploded ordnance, such as ammunition or missiles, at HPS.

3.1.7 Petroleum Corrective Action Plan

During the IRP at HPS, analytical data have been collected during SIs, RIs, and UST closures. Several IR sites in Parcels B, C, D, and E have been identified containing only TPH contamination at concentrations above the screening criteria of 100 parts per million (ppm) for TPH as gasoline and 1,000 ppm for TPH as diesel and motor oil. Because CERCLA specifically excludes petroleum products (and fractions thereof) from the definition of a hazardous substance, the Navy is addressing these TPH-only contaminated sites under a voluntary petroleum corrective action plan (CAP).

The purpose of the CAP is to summarize previous investigations; assess the impacts to soil; groundwater, surface water, and the environment, including human health; evaluate remedial options; develop cleanup levels for soil, groundwater, and surface water; and propose a preferred corrective action and verification program for each TPH contaminated area discovered.

The regulatory framework and approach to developing the TPH cleanup values at HPS is very similar to the approach currently being implemented at Naval Station Treasure Island located in San Francisco, California (PRC 1996s). The approach used at Naval Station Treasure Island is based on procedures used at the San Francisco Airport to determine TPH cleanup values (SBRWQCB 1995).

The procedures used at the San Francisco International Airport and Naval Station Treasure Island are proposed to develop TPH cleanup criteria for HPS because of the similarity of the following environmental conditions: (1) all three sites are located on shores of the San Francisco Bay and TPH contamination is suspected to leach from soil to the groundwater and potentially migrate to the bay and (2) the source of contamination at the sites originates from leaks in fuel storage tanks and pipeline

delivery systems. The primary difference between the conditions at the two Navy facilities and the airport is that the fuels used at the San Francisco Airport include gasoline, diesel fuel, and jet fuel; at HPS and Naval Station Treasure Island, a number of different petroleum products contaminate the soil, including gasoline, diesel fuel, Bunker C, and hydraulic oil, as well as commingled plumes of these fuel types. Also, because some of the contaminant sources at the Navy facilities are as old as 50 years, the petroleum hydrocarbons have undergone significant weathering and degradation.

Proposed steps for determining site-specific TPH cleanup levels at HPS are summarized below.

1) Identify and sample soils from borings that contained TPHs in one of three concentration ranges (low, medium, and high) for both TPH as diesel and TPH as gasoline.

2) Conduct two types of toxicity tests (bioassays) using elutriate from HPS soil: a bivalve shell development test and an echinoderm normal development test. In addition, perform soil chemistry and elutriate chemistry testing simultaneous with the bioassay testing.

3) Use the results of the toxicity tests as the HPS-specific TPH shoreline boundary condition. Conduct modeling to back-calculate HPS-specific TPH cleanup levels for groundwater and soil.

The CAP reports will be finalized as follows: Parcel B on April 7, 1997; Parcel C on December 22, 1997; Parcel D on September 10, 1997; and Parcel E on May 25, 1998.

3.2 COMPLIANCE PROGRAM STATUS

Compliance activities at HPS are conducted in conjunction with environmental restoration activities under the Navy's IRP. Compliance activities ensure that ongoing activities at HPS comply with appropriate state and Federal regulations. Compliance programs at HPS address: storage tanks, hazardous materials and hazardous waste management, solid waste management, PCBs, asbestos, radon, RCRA facilities, National Pollutant and Discharge Elimination System (NPDES) permits, oil/water separators and sumps, lead-based paint, air pollution, and utilities. The status of the closure-related compliance programs at HPS are described in the following sections and are summarized in Table 3-3.

3.2.1 Storage Tanks

Storage tanks include both USTs and ASTs. Storage tanks at HPS were used to store petroleum products, waste oils, and solvents. UST regulations and status at HPS and AST regulations and status at HPS are discussed below.

3.2.1.1 UST Regulations

Under RCRA Subtitle I, EPA has authorized Cal/EPA to regulate USTs. Cal/EPA has delegated UST enforcement to the appropriate California Regional Water Quality Control Board (Water Board), which has in turn delegated limited authority to enforce the UST program to local implementing agencies. For HPS, the City and County of San Francisco Department of Public Health is the local agency responsible for enforcing the UST program. While EPA may enforce the Federal regulations of RCRA Subtitle I, the primary regulatory program and enforcement used at Federal facilities are implemented under the State of California's Health and Safety Code.

3.2.1.2 UST Status

Thirty-six USTs have been removed and ten have been closed in place at HPS as part of Phase I and Phase II UST work (see Table 3-4). USTs at HPS were removed or closed in place during two phases: Phase I was conducted in 1991, and Phase II was conducted in 1993 (PRC 1994a). The UST investigation leading to removals and closures consisted of (1) a document review of the existing USTs at HPS and (2) on-site discovery through visual inspection of tank sites and interviews with available employees to verify the previous history and locations of USTs.

Previous studies indicated approximately 35 USTs at HPS, with 12 removals conducted prior to 1975. The remaining 23 USTs constituted the Phase I UST work. Subsequently, 23 additional tanks were identified during the on-site discovery process that comprised Phase II work. The removals and closures were conducted separately from the SI but under the IRP. The UST removals and closures and the SI investigations are integrated into the IRP at the RI stage where UST sites with confirmed contamination from leaking tanks are further investigated to determine the nature and extent of contamination. After this integration, the UST sites are tracked as part of the IRP throughout the remainder of the RI/FS process.

During all removals or closures in place, representatives from the City and County of San Francisco Department of Public Health and Cal/EPA were present and witnessed the activities. The documentation of these activities was then submitted to the City because it is responsible for the regulation of tank closures in the area. However, because all of the tanks either leaked and would therefore require an RI or are located in areas undergoing an RI/FS, the jurisdiction for the UST investigation transfers to the Regional Water Quality Control Board (Water Board). At the conclusion of the RI/FS process and cleanup at HPS, the Water Board will be responsible for certifying cleanup for the leaking USTs and issuing final closure documentation.

According to a U.S. Army Corps of Engineers PA report of the formerly used defense sites (FUDS), four abandoned USTs are possibly located at Building 815 (EFA WEST 1994d). Building 815 is a six story building that is currently used for storage. Due to the size of the building and nature of construction, it is likely that the four USTs were removed prior to the construction of Building 815. A soil gas survey was performed at Building 815 in November 1996 and determined that no residual contamination was left in place beneath Building 815. One UST was tentatively identified during a title search for the base-wide EBS at the west end of IR-76 and will be addressed under the IRP in the Parcel E RI phase.

Field work at HPS was conducted in December 1993 and January 1994 to verify reports of six unknown USTs cited in the Parcels B through E, Baseline Environmental Report, Naval Station Treasure Island, Hunters Point Annex, 60 Percent Draft (Tetra Tech 1993a), as well as reports from personnel involved with the IRP at HPS. The results of the field work confirmed the presence of five USTs. Three USTs, used for dipping in the former electroplating shops are located in the fenced area outside Building 411. These USTs are being removed as part of the ongoing Pickling and Plate Yard (IR-09) interim removal action. Two USTs are in the vicinity of Building 439; one is labeled "acid waste," and the other is labeled "alkaline waste." Field investigations conducted near Building 141 did not confirm the presence of the last UST, but based on visual inspection of the property, it is likely that UST is located near the building.

Table 3-4 is an inventory of the 46 USTs removed or closed in place at HPS as part of the Phase I and Phase II UST work. All USTs contained petroleum products or water except for 10 USTs, which

contained either waste oils or solvents considered hazardous substances under EPA or state hazardous substance regulations.

3.2.1.3 AST Regulations

EPA has regulated ASTs under the Oil Pollution Prevention regulation (40 Code of Federal Regulations [CFR] Part 112) of 1973, also known as the Spill Prevention, Control, and Countermeasure Plan. This regulation was amended in 1976. In October 1992, with a general emphasis on strengthening the provisions and promoting good engineering practices, EPA began developing proposals that would revise the Spill Prevention, Control, and Countermeasure Plan into two phases. The principle regulation of Spill Prevention, Control, and Countermeasure Plan phase I will require that certain provisions are now mandatory and no longer discretionary.

If oil or other hazardous substances from ASTs are discharged into navigable waters and adjoining shorelines, the Oil Pollution Act of 1990 places removal cost and damages liability on the on-shore AST facility owners and operators. This act is primarily enforced by the U.S. Coast Guard.
In January 1993, EPA promulgated regulations addressing the requirements of the Oil Pollution Act. The Oil Pollution Act and its regulations require AST facility owners and operators to submit facility response plans to the EPA. In general, the new rule mandates tank owners to have a means to contain an AST facility in case of leakage or releases.

RCRA Parts 262, 264, and 265, Subtitle C, apply to ASTs as generators of hazardous waste and treatment storage facilities.

Non-petroleum tank owners and operators are required to report releases of hazardous substances in accordance with CERCLA, as amended by SARA. This act also regulates responsible party liability and cost recovery for cleanups, and has established cleanup requirements.

The Occupational Safety and Health Administration has developed national standards (29 CFR 1910, 106) for handling, storage, and use of flammable and combustible liquids. The Occupational Safety and Health Administration recently released 29 CFR Section 1910.146, "Permit Required Confined Spaces for General Industry," which is potentially applicable to AST facility owners and operators.

While the National Pollutant Discharge Elimination System does not regulate ASTs specifically, it does regulate the discharge of pollutants into surface waters. For AST facilities, this may mean runoff from diked areas can not be directed immediately into a storm sewer if water quality discharge standards have not been met. In this case, AST facilities may be required to use oil/water separators or other forms of water treatment prior to discharging runoff into a storm sewer.

A 1993 bill that would require leak detection, corrosion protection, registration fees, structural integrity, and secondary containment for ASTs is pending in the House of Representatives (HR 1360) and in the Senate (S 588). However, ASTs with less than a 12,000-gallon capacity are exempt from this bill.

In California, the California Health and Safety Code, Chapter 6.67, Division 20, at Section 25270, regulates ASTs. In April 1991, Senate Bill 1050 was added to Section 25270 of the Code. The Public Resource Code, Section 3106, also regulates ASTs.

3.2.1.4 AST Status

A comprehensive survey of ASTs has not been conducted at HPS. During the visual site inspection for the base-wide EBS in February 1996 (PRC 1996b), an inventory of ASTs was conducted and ASTs documented as removed were confirmed to be removed. A comprehensive survey is recommended for inclusion under the Navy's compliance program (see Section 4.2.1), however, the compliance program has limited funding and is unable to conduct the survey at this time. The AST issue is further complicated because activities of the Navy's tenants are self-regulated and therefore prevents the compilation of a complete survey.

Ten ASTs have been removed at HPS. These tanks included Tank S-505 in IR-02 (HLA 1993a) and nine ASTs from Tank Farm (IR-06) (HLA 1994e). These tanks were removed as part of the Navy's IRP. These tanks were removed because of obvious signs of leakage or an imminent threat of leakage. An old photograph of IR-06 shows saddles for nine additional tanks. Because the tanks are no longer at the site, these ASTs have apparently been removed; however, no documentation has been found to confirm when these removals occurred (EFA WEST 1994e). IR-06 is currently undergoing a interim removal action that consists of contaminated soil removal.

Although no comprehensive survey of ASTs has been completed, when SA sites were investigated as part of the IRP, any observations of ASTs were noted with particular emphasis on the condition of AST, potential leakage and contamination issues. Table 3-5 is an inventory of ASTs identified during the SA and those currently known to have been removed at HPS. This list does not include open dip or process tanks, tanks located above the first floor of a building, or sandblast baghouses. All tanks removed as part of the Navy's IRP contained petroleum products or water, except for two that contained solvents. Based on a literature review, 20 other tanks have been removed from HPS in the past, but no records exist to document the disposal history of the tanks.

3.2.2 Hazardous Materials and Hazardous Waste Management

Hazardous waste is defined under RCRA as solid waste or a combination of solid wastes that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may bring about the following:

1. Cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness,

2. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. (RCRA 1004[5]; 42 United States Code[USC] 6903[5])

Solid waste is classified as a hazardous waste if it is listed waste or if it exhibits one of the four characteristics of a hazardous waste defined in RCRA Subtitle C (CFR Parts 260-270) under the California Code of Regulations [CCR] Title 22). The State of California is authorized to implement the RCRA hazardous waste management and corrective action programs. The State of California's hazardous waste regulations are generally more stringent than Federal regulations. Hazardous materials and hazardous waste management authority and status at HPS are discussed below.

3.2.2.1 Hazardous Materials and Hazardous Waste Management Authority

A number of Federal and state regulations apply to hazardous waste management. Among these, the most applicable are RCRA Subtitle C (40 CFR Parts 260-270), Hazardous Materials Transportation Act

(49 CFR Parts 170-179), and California Code of Regulations (CCR), Titles 22 and 23. The handling and management of hazardous wastes generated during normal activities at HPS are described in the Hazardous Waste Management Plan for Naval Station Treasure Island (EFA WEST 1992). Navy personnel will update this plan; however, the actual date of completion has not been determined. In addition, under the Installation Restoration Program, the Navy's subcontractor handles investigation-derived wastes (IDW) in accordance with the Program Waste Management for IDW (PRC 1994b).

3.2.2.2 Hazardous Materials and Hazardous Waste Status

The status of IDW, facility tenants, and housekeeping related to hazardous materials and hazardous waste status at HPS are discussed below.

Investigation-Derived Waste

Building 810 was used in the past to accumulate and store hazardous waste generated under the Navy's IRP and by the Navy Public Works Center. IDW generated under the IRP was previously stored in Building 810. In an attempt to better control IDW, the IDW storage area for the IRP was moved from Building 810 to Building 130. IDW generated under the IRP is generally stored in steel-covered roll-off bins in the area under investigation. IDW suspected of containing contaminants different from those generally present throughout the rest of the site under investigation or that is visibly contaminated is segregated and stored in 55-gallon steel drums. These drummed wastes are then transported to Building 130, where other IDW drums are stored. The contents of the drums are characterized and then properly disposed of off-site. All IDW that is currently generated and stored in Building 130 is sampled, characterized, and disposed of off-site within 90 days.

Potentially radioactive materials contained in 55-gallon steel drums or steel-covered roll-off bins are stored in a separate containment area inside Building 130. The Navy's Radiation Affairs Support Office is in charge of all radioactive materials at HPS. Drums containing potentially radiologically-contaminated material were screened in September 1996. The Navy's Radiation Affairs Support Office is awaiting confirmation of results to determine proper disposal procedures. The containers have been slated for disposal in early 1997.

Facility Tenants

Several office buildings and commercial/industrial buildings are leased by the Navy to private tenants. The tenants are responsible for proper handling, storage, and disposal of any hazardous wastes that they may generate, although the Navy has yet to develop a strategy to ensure this (see Section 4.2.7 for the Navy compliance strategy). The schedule for the strategy development has not been determined.

Housekeeping

The Navy's Public Works Center is responsible for disposal of hazardous materials such as damaged, abandoned, or out-of-use transformers at HPS and liquids collected in sumps. Currently, there is no centralized location for storing PCB-bearing equipment prior to disposal by the Public Works Center.

3.2.3 Solid Waste Management

Solid wastes are defined as discarded materials except for materials considered to be hazardous waste under RCRA Subtitle C or hazardous substances as defined by CERCLA and the State of California Carpenter-Presley-Tanner Hazardous Substance Account Act.

"Solid waste" is a statutory term that encompasses any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility. Solid waste also includes other discarded materials, such as solid, liquid, semisolid, or contained gaseous material, resulting from industrial, commercial mining, or agricultural operations or community activities. Solid waste does not (1) include solid or dissolved materials in domestic sewage; (2) solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as amended; or (3) source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended. Solid waste that is not a hazardous waste is regulated under RCRA Subtitle D and CCR Title 23. Solid waste regulation and status at HPS are discussed below.

3.2.3.1 Nonhazardous Solid Waste Regulation

Nonhazardous solid waste management regulations applicable to HPS include Federal, state, local, and Navy requirements. In general, California places the burden of action and responsibility on the county to ensure the state compliance with regulatory requirements.

RCRA establishes public safety and health standards for the disposal of solid waste. RCRA and the Military Construction Codification Act of 1982 provide for various means of recovering value from solid waste. Wastes may be recycled, reclaimed, used as a fuel supplement, or sold for "profit."

California Assembly Bill 939 requires counties in California to divert 25 percent of their solid waste from its landfills by 1995 and 50 percent by the year 2000. California Senate Bill 1223 establishes comprehensive state programs designed to increase recycling and encourage the development of commercial markets for recyclable materials.

Chief of Naval Operations Instruction 5090.1A, Chapter 10, requires that all Navy installations comply with Federal, state, and local solid waste management requirements. Each installation is required to develop a qualified recycling program to reclaim scrap metal, high-grade paper, corrugated containers, and aluminum cans. Installations are required to compost yard waste where feasible.

3.2.3.2 Nonhazardous Solid Waste Status

Solid wastes generated by DoD tenants at HPS are collected by a private contractor in accordance with all applicable regulations. Private tenants manage the collection of their own wastes. No solid wastes are disposed of on HPS property. When HPS was an annex to Treasure Island, three private contractors were authorized to scrap materials at HPS. Since HPS was transferred to EFA WEST, no contractors have been authorized for these scrapping activities.

Disposal of debris at HPS is managed by the HPS Base Caretaker through the Public Works Center. Currently, the Public Works Center has two contracts for "housekeeping" debris removal.

3.2.4 Polychlorinated Biphenyls

PCBs are a specialized class of manufactured chemicals able to withstand high temperatures and insulate electrical currents. PCBs were traditionally used in electrical transformers, capacitors, lighting ballasts, and other similar equipment. Primary PCB regulations and the status of PCB-contaminated equipment at HPS are discussed below.

3.2.4.1 PCB Regulation

PCBs are a hazardous substance under CERCLA. CERCLA sites contaminated with PCBs may be cleaned up according to standards defined by the Toxic Substances Control Act and regulations promulgated in 40 CFR Part 761. Under the Toxic Substances Control Act, PCB fluids are classified into three categories:

1. **Non-PCB.** PCB fluid concentration is less than 50 parts per million (ppm).
2. **PCB-Contaminated.** PCB fluid concentration is greater than 50 ppm, but less than 500 ppm.
3. **PCB.** PCB fluid concentration is greater than or equal to 500 ppm.

California regulates PCB waste liquid at 5 ppm or greater. Any handling or disposal of transformer fluids at levels higher than 5 ppm must be in accordance with current state laws and regulations as found in CCR Title 22, Division 4, Chapter 30. PCBs are classified as a hazardous waste under California Regulations.

3.2.4.2 PCB-Contaminated Equipment Status

Several surveys have been conducted in the past to identify PCBs and PCB-contaminated fluid concentrations greater than 50 ppm in electrical equipment at HPS. After the shutdown of shipyard operations and the cessation of Triple A operations from 1974 to 1988, the replacement and removal of PCB-containing equipment was conducted by Naval Station Treasure Island. During this period, 199 transformers were removed; 99 transformers were found to contain PCBs. A Navy contractor, American Environmental Management Corporation, conducted the majority of the removals in 1987 and 1988. YEI Engineering (YEI) conducted a facility-wide utility study that included a survey of all

existing, on-site electrical equipment containing PCBs in 1988 (YEI 1988). At this time, YEI found 83 pad- or pole-mounted transformers containing PCBs at concentrations less than 50 ppm and 162 at concentrations greater than 50 ppm. Additionally, out of the 206 breakers and switches surveyed, 112 were found to be PCB-contaminated.

Under the IRP, 78 transformer locations containing PCBs at concentrations greater than 50 ppm were surveyed and evaluated for leakage and contamination. Removals were recommended if any problems were found. Additionally, under the IRP the sites of 118 transformers removed prior to 1988 were investigated. These sites were visually evaluated for leakage of oils containing PCBs. Because the previous studies only addressed equipment containing PCBs at concentrations greater than 50 ppm, additional work has been proposed to address equipment containing lower PCB levels.

The Navy Public Works Center (PWC) was tasked by EFA WEST to update the existing 1989 PCB Survey report and to remove and dispose of remaining PCBs and PCB-containing equipment. Two surveys (high and low voltage equipment containing PCBs) were completed by PWC in 1996. The two reports were submitted in April 1996. The low voltage survey found only four suspect items containing PCBs, including non-electrical equipment. The high voltage survey identified 47 items, as follows: (1) no PCB transformers require removal of replacement; (2) four devices had test results in the range of 50-499 ppm of PCBs and these items must be removed by 2003; (3) seven non-PCB devices were identified that are currently in use, however, these items will not require removal or disposal; and (4) the remainder of the equipment is abandoned or already out of service, and only requires disposal of which is anticipated to be completed in 1997 (EFA WEST 1996c).

3.2.5 Asbestos

Asbestos is a group of naturally occurring fibers that are heat- and chemical-resistant. Asbestos fibers are flexible and, when handled, break down into finer fibers that can become airborne. These fine fibers may cause lung cancer when inhaled. Asbestos was used in fire-resistant building products, insulation, brake pads, thermal insulation for steam lines, and other uses.

At HPS, naturally occurring asbestos mineral is present in the form of chrysotile in 1/8-inch veinlets scattered throughout the serpentinite bedrock. The type of asbestos mineral considered the most

harmful is crocidilite. Crocidilite is not present at HPS. Damaged, friable, and accessible asbestos in buildings at HPS (see Table 3-6 and Figure 3-20) is being abated in accordance with all applicable regulations (EFA WEST 1997c).

3.2.5.1 Asbestos Regulation

Federal regulations cover the manner in which asbestos can be used or handled. This discussion focuses on regulations dealing with worker protection and the disposal of asbestos waste materials. Several Federal and state agencies have regulatory jurisdiction over asbestos: the EPA, the Department of Transportation, the U.S. Occupational Safety and Health Administration, the California Occupational Safety and Health Administration, and the State of California Air Board.

Under the Clean Air Act, EPA regulates asbestos via the National Emission Standards for Hazardous Air Pollutants (NESHAPS). These regulations address asbestos industries, application of asbestos-containing material (ACM) in new buildings, and handling and disposing of ACM during demolition and removal operations. Specific regulations for ACM in buildings are listed below (EPA 1985):

- Before building demolition of more than 260 linear feet of asbestos pipe insulation in a building or the removal of more than 160 square feet of asbestos surfacing material during renovation, advance notice must be filed with the EPA regional office and/or state.
- ACM can be removed only with wet removal techniques. Dry removal is allowed only under special conditions and with written EPA approval.
- No visible emissions of dust are allowed during removal, transportation, and disposal of ACM.

EPA also regulates asbestos in schools under the Friable ACM in Schools, Identification and Notification Rule, promulgated under the Toxic Substances Control Act (EPA 1985).

As specified in the Hazardous Materials Transportation Act, the Department of Transportation considers asbestos a hazardous material. The act (1) categorizes asbestos for transportation requirements, (2) establishes a reportable quantity of 1 pound, (3) specifies asbestos shipping container requirements, and (4) establishes standards intended to limit exposure of transportation personnel (Carson, Doye, and Cox 1992).

Occupational Safety and Health Act regulations for asbestos specify airborne exposure standards for asbestos workers, engineering and administrative controls, workplace practices, medical surveillance, and worker protection requirements.

3.2.5.2 Asbestos Status

Asbestos issues at HPS have been addressed under two programs: the IRP, which investigates potential contamination from various chemicals, and the compliance program, which ensures the Navy's compliance with the various applicable regulations.

In 1987 under the IRP, the Navy collected and analyzed surface soil samples for asbestos facility-wide. Additional samples were collected during the first 22 IR site investigations from the surface to 5 feet below ground surface. Subsequent sampling for asbestos has focused on documenting instances of asbestos contamination, such as in building debris. Evaluation of this data has confirmed the presence of low levels of naturally occurring chrysotile asbestos facility-wide from the native serpentinite bedrock. The use of normal dust-suppression techniques during future removal or removal actions is adequate to alleviate health concerns because the only release of asbestos fibers to air would be through the excavation and crushing of serpentinite bedrock.

Under the Navy's compliance program, existing structures at HPS have undergone two separate surveys. One survey consisted of Parcel A and Dry Dock 4 (Tetra Tech 1993b), and the other consisted of Parcels B through E (Mare Island 1994b). The surveys provide a complete inventory of friable and nonfriable asbestos conditions at HPS and include recommendations for abatement of damaged, friable, and accessible asbestos. The surveys included inspection of 148 buildings and structures. Suspected ACM was identified and sampled in accordance with Asbestos Hazard Emergency Response Act guidelines. Some materials suspected of being ACM was assumed to be ACM and not sampled, as directed in the scope of work from EFA WEST. Of the 148 buildings inspected, 98 buildings contained confirmed ACM and 138 buildings contained potential ACM. Seventy-six buildings contained friable and damaged ACM requiring abatement.

DoD policy for ACM at BRAC properties states that unless ACM is determined to pose a threat to human health at the time of transfer, all property containing ACM will be conveyed, leased, or

otherwise disposed of as is through the BRAC process (DoD 1994c). Prior to property disposal, all available information on the existence, extent, and condition of the ACM will be incorporated into the EBS or other appropriate documents, such as the FOST, to be provided to the transferee. The information provided to the transferee will include the following:

- Available information on the type, location, and condition of asbestos in any building or improvement on the property
- Results of asbestos testing
- A description of asbestos control measures taken for the property
- Available information on costs or time necessary to remove all or any portion of the remaining ACM
- Results of a site-specific update of the asbestos inventory performed to revalidate the condition of the ACM

Table 3-6 and Figure 3-20 provide an inventory of the two buildings surveys of containing damaged, friable, accessible asbestos and abatement information. Abatement is now in progress at these buildings, and dates of completed abatement activities are listed in Table 3-6 (EFA WEST 1997c). All Parcel A buildings containing damaged, friable, and accessible asbestos have undergone abatement. Asbestos abatement is expected to be completed by early 1997.

3.2.6 Radon

Radon is a decay product of uranium that is naturally occurring in some geologic formations, primarily granitic rock. Building products, especially cinder blocks made from materials high in granitic rock, may release radon gas. Radon may pose a hazard in airtight buildings where the gas can accumulate (Carson, Doye, and Cox 1992). Radon regulations and the status of radon at HPS are discussed below.

3.2.6.1 Radon Regulation

Radon is regulated under CERCLA as amended by the Superfund Amendments and Reauthorization Act. Title IV of the Superfund Amendments and Reauthorization Act contains the Radon Gas and Indoor Air Quality Research Act of 1986. Section 403 of the act outlines a research program that

emphasizes the gathering of data for radon gas, reporting requirements, and funding details (Carson, Doye, and Cox 1992).

Under Federal Law 100-551, Section 309, the EPA requires all Federal departments or agencies to assess and mitigate radon contamination in any buildings they own. Navy policy, Chief of Naval Operations 5090.1A, requires that all Navy buildings and housing units occupied for more than 4 hours per day shall be tested for the presence of radon gas. Both the Navy and the EPA require mitigation for radon levels exceeding 4 picocuries per liter.

3.2.6.2 Radon Status

Buildings and former housing units at HPS have not been surveyed for radon. DoD policy is to ensure that any available and relevant radon assessment data pertaining to BRAC property being transferred shall be included in property transfer documents. Under DoD policy, radon assessment and mitigation will not be performed prior to transfer of BRAC property unless otherwise required by applicable law (DoD 1994c).

3.2.7 RCRA Facilities

No RCRA facility investigations or RCRA facility assessment has been conducted at HPS. The Navy does not have a RCRA permit for HPS because the Navy operates under the 90-day storage clause for a hazardous waste generator; therefore a permit for storage is not required. HPS tenants are required by their lease agreements to comply with RCRA regulations. Prior to the BRAC designation of the facility, the Navy conducted internal audits and audits of other Federal agency tenants under the control of Naval Station Treasure Island for RCRA activities. As a result, sites potentially contaminated during the last 10 years were addressed under the IRP as part of the SA in 1994 (HLA 1994a).

The objective of the SA was to perform a "RCRA-type" audit of past and present tenants. The survey involved a record search of all existing documents, which included previous IRP reports, aerial photographs, inspections reports, permits, and available files at regulatory agencies and the Navy. Field inspections were conducted, along with interviews of personnel and review of any tenant files accessed. Because this investigation was not an actual RCRA audit, the level of review was less than a normal RCRA audit. The investigation is documented in the "Final Site Assessment Report,

Potentially Contaminated Sites, Parcels B, C, D, and E, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California" (HLA 1994a). A total of 110 buildings or areas forming 75 SA sites were included in the field inspection. Of the 75 SA sites investigated, 28 are recommended for further investigation based on observed or potential releases of chemicals to the environment and were incorporated into the IRP for the specific parcel in the RI phase (see Table 3-1).

3.2.8 National Pollutant Discharge Elimination System Permits

Dry Dock 4 has been leased to the Astoria Metals Corporation for dismantling Navy ships. The Navy transferred its NPDES permit to the Astoria Metals Corporation for Dry Dock 4 usage. EFA WEST also holds an interim permit for storm water outfalls at HPS. Compliance reports are submitted to the Water Board in accordance with the conditions specified in both permits. The storm water pollution prevention plan and discharge to the City sanitary sewer system at HPS are discussed below.

Storm Water Pollution Prevention Plan

The "Addendum Storm Water Pollution Prevention Plan (SWPPP), Hunters Point Shipyard" (Radian Corporation 1995) of the "Final Storm Water Pollution Prevention Plan, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California" (PRC/MW 1994) outlines the latest pollution prevention practices at HPS. It updates the current HPS strategy for reducing and preventing storm water pollution, contains a list of industrial activities at HPS, lists personnel responsible for implementing the SWPPP, outlines best management practices for each industrial activity identified at HPS to reduce and prevent storm water pollution, and outlines erosion and sediment control practices at HPS.

Discharges to the City and County of San Francisco Sanitary Sewer System

The sanitary sewer system at HPS collects facility-generated sewage and conveys it to the City's wastewater treatment system. HPS does hold a permit to discharge sewage to the City's sanitary sewer system. HPS obtains a batch discharge permit from the City each time it discharges remedial investigation derived wastewater into the San Francisco sanitary sewer system (EFA WEST 1996a).

Purged groundwater, decontamination water (from cleaning field equipment), and minor amounts of storm water that collect around the sampling equipment from ongoing RI activities collected, stored, and sampled on site. Sampling results are submitted to the City, which examines the results for compliance with City discharge limits. The City issues a permit to HPS as long as the results are within the discharge limits for industrial wastewater. Wastewater from the IRP is discharged from Pump Station A at Parcel A to the Southeast Wastewater Pollution Control Plant approximately eight times a year.

Surface water runoff at HPS generally moves by sheet flow to the lower areas of the site (PRC 1994b). Runoff is collected by the storm drain system and is generally discharged into San Francisco Bay through several outfalls. The sanitary sewer system flows are discharged to the Southeast Wastewater Pollution Control Plant for treatment.

In addition to purged groundwater and surface runoff, other water discharged to the sanitary sewer system includes groundwater that infiltrates into the sanitary sewer system at HPS. Groundwater infiltration into the sanitary sewer system primarily occurs in Parcel D and the eastern portion of Parcel E. Groundwater infiltration is primarily due to the poor integrity of the sanitary sewer lines and the location of the sanitary sewer lines, which have sunk through the Artificial Fill and now lies beneath the groundwater table in low lying areas. Infiltration is further enhanced by tidal influence when bay water infiltrates the sanitary sewer system during periods of high tide. Discharge from the sanitary sewer system is pump to Pump Station A at HPS and then to the Southeast Wastewater Pollution Control Plant.

3.2.9 Oil/Water Separators and Sumps

No oil/water separators are currently in use at HPS. Only subsurface steam pipes located at the base of the oil reclamation ponds Parcel E (IR-03) were used to heat liquid in the ponds to facilitate oil/water separation. The Navy operated these ponds from 1944 to 1974. The water drawn off during the separation process was discharged to San Francisco Bay, and the reclaimed oil was removed about three times a year by a private contractor. A treatability study has been developed to evaluate the feasibility of thermally and chemically augmented recovery of light nonaqueous-phase liquids (LNAPL)

or oil from the ponds. Recommendations made in the IR-03 treatability study will be implemented under the IRP. Sumps are also investigated and remediated under the IRP.

3.2.10 Lead-Based Paint

DoD policy regarding lead-based paint states that the Navy must comply with all applicable Federal, state, and local laws and regulations regarding lead-based paint hazards (DoD 1994c). However, there are no local or state lead-based paint standards, and Federal requirements for the transfer of Federal property for private residential use under the Residential Lead-Based Paint Hazard Reduction Act of 1992, implemented by the regulations in 40 USC Section 4822, only address family housing (EFA WEST 1994f). However, if work is performed on structures coated with lead-based paints, regulations for air exposure to workers under the Occupational Safety and Health Administration would apply. Also, lead-contaminated residues generated during paint removal would be regulated under RCRA if they are found to be a characteristic hazardous waste or under the California Hazardous Waste Management Regulations if they fail the waste extraction test or exceed the total threshold limit concentration for lead (1,000 ppm) as described in the CCR, Title 22, Chapter 11, Section 66261.24(a).

3.2.10.1 Lead-Based Paint Status

In 1993, the Navy instituted a survey for the former housing units located in Parcel A following the HUD guidelines for lead-based paint surveys and taking into account the fact that these quarters are not currently occupied and have not been occupied for several years (Tetra Tech 1993b). Since the City and County of San Francisco has stated that the former housing units in Parcel A are not likely to be reoccupied, the survey concentrated on potential lead sources from lead-based paint in the soil surrounding the Parcel A housing area and exterior painted surfaces. Samples of soil were taken from the surface, no more than one inch in depth because lead-based paint is generally deposited on the surface of the soil and persists over time. The generally acceptable levels for lead in the soil based on HUD's June 1995 guidelines are 400 milligrams per kilogram for areas expected to be used by children including residential backyards, day cares, and school yards and other areas where children gather. The general range of lead encountered in the survey was found to be below this level.

3.2.11 Air Pollution

Air pollution can be caused by emissions from a variety of sources and is regulated by various criteria. Hazardous air pollutants are defined in Federal and state air quality programs, including the Federal Clean Air Act, the 1990 Clean Air Act Amendments, and the California State Implementation Plan. Air pollution regulation and the status of air pollution at HPS are discussed below.

3.2.11.1 Air Pollution Regulation

Air pollution generated by stationary sources located in the San Francisco Bay Area is regulated by the air pollution rules and regulations of the Bay Area Air Quality Management District (Air Quality Management) with authority delegated by the California State Air Resource Board and EPA. The Navy environmental program manual, Chief of Naval Operation Instruction 5090.1A, requires that all Navy ashore activities comply with the air pollution regulatory requirements of the Federal, state, and local agencies.

3.2.11.2 Air Pollution Status

The air pollution status at HPS consists of components addressed under the IRP and compliance programs. Activities under the compliance programs consist of existing air permits and associated activities, while IRP activities consist of ambient air sampling conducted in conjunction with the RI/FS. Under the compliance programs, EFA WEST still holds the following air permits issued by the Air Quality Management for HPS with District Plant Number 1133 as follows:

S-1 Boiler for Space Heating
S-39 Water Heater
S-119 Dry Dock 3 Paint System
S-120 Dry Dock 3 Sandblasting Equipment
S-121 Dry Dock 4 Paint System
S-122 Dry Dock 4 Sandblasting Equipment
S-123 Boiler for Space Heating

The existing air permits require paying permit fees to the Air Quality Management annually. These emission sources were not used after the shutdown of HPS in 1974. Therefore, according to Air Quality Management Regulation 2, Rule 4, the potential emission reduction credits are no longer available for these emission sources. After the Navy determines whether it needs the existing permits to support current needs, it will determine if the permit should be terminated or transferred to support reuse.

Three previous air sampling investigations have been conducted under the IRP, and a fourth investigation is now underway. The three initial investigations included (1) limited air sampling of four areas conducted in 1987, (2) an air sampling investigation to assess air quality in HPS landfill areas conducted in 1988 to 1989, and (3) facility-wide air sampling conducted in 1992, 1994, and 1996. These three investigations are summarized below.

1. Limited air sampling conducted in 1987 focused on two IR sites and two proposed housing sites near the main gate at HPS. The air samples were analyzed for asbestos, PCBs, VOCs, SVOCs, and metals. The only detections of significance were metals in Building 123 at IR-10.

2. An investigation in 1988 to 1989 consisted of a solid waste air quality assessment, which the State of California requires for all landfill areas, including those at HPS. The sites investigated at HPS included IR-01, IR-02, IR-03, IR-07, IR-12, IR-14, and IR-18. This assessment was required to determine whether any gases were present in the landfill, sediments, surface gas emissions, or subsurface migration of gases. The analysis of gases covered a wide range (for example, from solvents to toluene, xylene, and methane). Surface gas emissions were not detected during this investigation. The only compounds detected were in ambient air upwind from possible off-site sources in surrounding industrial areas. Methane was detected in isolated pockets at the industrial landfill (IR-01), oil reclamation ponds (IR-03), and within the disposal trench at IR-12. The only subsurface migration of methane observed was next to the FUDS at the northern edge of IR-01 (near Buildings 830 and 831).

3. Because on-site workers were dispersed around HPS and the local community was located upwind and topographically higher than HPS, the facility-wide air sampling conducted in 1992 focused on the first 11 IR sites. Sampling was conducted at 12 locations, including two upwind locations and one downwind locations. Samples were analyzed for asbestos, VOCs, SVOCs, PCBs, pesticides, metals, and formaldehyde. Of the chemicals detected, the highest values were of asbestos and pesticides upwind from HPS originating from the industrial areas around HPS. Low levels of VOCs were detected facility-wide, and the highest VOC concentrations were detected at IR-09; however, these VOCs are thought to have originated from an on-site tenant using solvents.

As a result of the 1992 air sampling, additional sampling was conducted in 1994 and 1996. This phase of air sampling went beyond the screening level of the previous sampling by focusing on HPS areas thought to be the most contaminated. The study investigated long-term gas emissions of VOCs through a 30-day monitoring of sites with high levels of VOCs in the soil. By analyzing problems caused by dusts suspended in the air, the study also evaluated the potential for soil erosion caused by the wind. Sampling of air within several buildings was also conducted to determine contaminant concentration in air from all sources. These sources include ongoing operations, volatilization from soil, and volatilization from groundwater.

3.2.12 Utilities

The primary utilities at HPS include the storm drain, sanitary sewer, and steam line systems. Figures 3-21 through 3-25 show the locations of utilities at Parcels A through E, respectively. Brief summaries of the history and status of utilities at HPS are presented below.

3.2.12.1 Utilities History

The storm drain and sanitary sewer systems, constructed from 1942 through 1958, were originally combined. Separation of the systems began in 1958 and was largely completed by 1976.

The steam line system, constructed approximately 40 years ago, spans the entire shipyard. The steam lines' primary function was to supply steam to heat buildings and ships docked at the facility and to warm fuel lines to facilitate fuel flow. Portions of the system were used until as late as 1984. The steam lines were suspected to have been used by Triple A to transport waste oil containing PCBs from the dry docks to the oil reclamation ponds in Parcel E.

3.2.12.2 Utilities Status

A survey conducted in 1988 concluded that the condition of the storm system varied widely at HPS (YEI 1988). The system is hydraulically unbalanced, and tidal flooding infiltrates the system because of street and ground surfaces with subtidal elevations. In addition, age and improper and inadequate maintenance have deteriorated the quality of the system. Corroded pipe and manhole walls, leaky and broken joints and pipes, and improperly disconnected diversion structures are among the deficiencies of

the storm drain system. All of these factors contribute to infiltration and inflow problems. Groundwater infiltration is a problem for the storm drain system. The removal of contaminated sediments in the storm drain system is considered a high priority interim removal action under the IRP and is expected to be completed in early 1997.

HPS is currently served by a sanitary sewer system that collects facility-generated sewage and conveys it to the City's wastewater treatment system. According to the conceptual groundwater flow model, Pump Station A in Parcel E may be transporting contaminated HPS groundwater that infiltrates the sanitary sewer system to the Bay. It is likely, however, that the large amount of groundwater from the bay that infiltrates into the sanitary sewer system, along with the tenants' flow, dilutes the contaminant level of groundwater leaving HPS at Pump Station A to below levels of concern.

The storm drain and sanitary sewer lines are being investigated under the IRP as SI-50 in Parcel A and IR-50 in Parcels B through E. The steam lines are being investigated under the IRP as SI-45 in Parcels A and B and IR-50 in Parcels C through E. For planning and budgeting purposes for Parcels B through E, information for IR-45 (Steam Line System) and IR-50 (Storm Drain System and Sanitary Sewer System) has been consolidated into IR-46 for Parcel B; IR-28 for Parcel C; IR-34 for Parcel D; and IR-72 for Parcel E.

3.3 NATURAL RESOURCES

The DoD is a designated trustee for natural resources on Federal land the department manages in conjunction with other Federal and state natural resource trustees, as stated in the National Contingency Plan Subpart G, Trustees for Natural Resources (40 CFR Section 300.600). As trustees, they are authorized to act pursuant to Section 107(f) of CERCLA or Section 311(f)(5) of the Clean Water Act when there is injury to, destruction of, loss, of, or threat to natural resources as a result of a release of a hazardous substance or a discharge of oil. In addition to the National Contingency Plan, other laws such as the Endangered Species Act (16 USC 1531-1543; 40 CFR 17). Migratory Bird Conservation Act (16 USC 2912.13), Marine Mammal Protection Act (16 USC 1361.7), and various California Department of Fish and Game designation codes also protect natural resources. National resources at HPS are described in Sections 3.3.2 to 3.3.5.6. The role of the natural resource damage assessment and its process is explained below, followed by a discussion of threatened and endangered species; rare

or sensitive habitats; wetlands, surface water, and flood plains; biota; cultural resources; and archaeological resources at HPS.

3.3.1 Natural Resource Damage Assessment

Under CERCLA, natural resources are defined as "land, fish, biota, air, water, groundwater, drinking water supplies, and other such resources" managed or controlled by Federal agencies, state governments, or Indian tribes. Natural resource damage claims apply to the "residual" damages left after a cleanup is complete; the claims may include the value of lost use and the cost of conducting the assessment. The following sections discuss the trusteeship, liability, and damage determination for natural resource damage assessments.

3.3.1.1 Trusteeship

Federal trustees designated under the National Contingency Plan include the secretaries of the U.S. Departments of Interior, Commerce, Defense, Energy, and Agriculture. State governors may appoint state agencies as trustees for resources under their jurisdiction. It is not necessary for a government to "own" injured resources to act as a trustee, but it must demonstrate that a resource is subject to "a substantial degree of government regulation, management, or other form of control."

The Secretary of Commerce has delegated trustee authority to the National Oceanic and Atmospheric Administration (NOAA), which asserts trusteeship for natural resources found in or under navigable waters and in upland areas serving as habitat for marine mammals or other protected species. Other Federal and state agencies assert trusteeship for resources that they manage, such as migratory birds, anadromous fish, threatened and endangered species, certain marine mammals, and certain Federally managed water resources. The natural resource damage regulations do not provide clear rules regarding overlapping jurisdiction among trustees; however, the regulations clearly bar double recovery where there are multiple trustees.

3.3.1.2 Natural Resource Liability

Under CERCLA, parties who are responsible for the release of hazardous substances are liable for "damages for, injury to, destruction of, or loss of natural resources, including other reasonable costs of

assessing such injury." However, recovery of damages is prohibited for natural resource losses that were identified in an environmental impact statement and subsequently authorized by a license or permit.

Natural resource damage claims are meant to be restitutional rather than punitive. Damages must be evaluated in the light of remedial response actions; damages are applicable only to the residual injuries that remain after the response action. Damages recovered may be used only to restore, replace, or acquire the equivalent of the injured natural resource.

3.3.1.3 Natural Resource Damage Determination

The trustees are responsible for the natural resource damage assessment, although potentially responsible parties can be permitted to conduct the assessment with trustee oversight. The assessment process begins with a screening to assess whether the release justifies an assessment. Before proceeding to a full assessment, several criteria must be met. If an assessment is deemed necessary, a plan is drafted. The assessment plan identifies all scientific and economic methodologies that are expected to be used, demonstrates that the methodologies are cost effective, and indicates that the assessment will be coordinated with any site remediation.

The natural resource damage assessment must (1) demonstrate that a resource has been injured, (2) quantify the injury, and (3) translate that injury into compensable damages. Two assessment approaches are available. Approach A uses a simplified model developed specifically for coastal and marine environments. Approach B uses environmental data and various economic value theories to arrive at damages in other environments. Injury is quantified by comparison with a baseline level of service for the resource or the conditions that would have existed had the release not occurred. When no prerelease data are available, the baseline is often determined using a control area.

During the pre-assessment and assessment phases, trustees are expected to make maximum use of site data compiled from the RI/FS or similar investigations. Available data are used to review the characteristics, quantities, and duration of the release, the site history, relevant operations at or near the site, and potentially responsible parties. Resources potentially at risk are identified by the conditions of the release, the potential exposure pathways and routes, toxicological properties of the discharged

substance, and physical conditions at the site. Most of this information is available in site investigation documents.

Damage determination regulations, ecological assessments under the RI/FS process, and the disposal of property are discussed below.

Damage Determination Regulations

Mitigation of injury to natural resources resulting from a release of hazardous materials is regulated by CERCLA Section 107(f) and the Clean Water Act Section 311(f)(5), and clarified further in the NCP (40 CFR 300.615[c]). In addition, the NCP (40 CFR 300.615[c]) authorizes the Navy, as a Federal trustee, to conduct a preliminary survey of the area affected by the release, cooperate in the planning of further action, and develop a plan to restore, rehabilitate, or replace natural resources injured by the release.

CERCLA Section 104(b)(2) requires notification of Federal and state natural resource trustees that a release has occurred so that the co-trustees can coordinate assessment, investigation, and planning. Trustees are to be notified by letter of other significant steps, such as discovery of a contaminated site, RI/FS negotiations, and submittal of documents such as work plans, sampling plans, draft record of decisions, final record of decisions, and design documents. Figure 3-26 illustrates key junctures in the RI/FS process where natural resource trustees should be notified. Specific responsibilities of trustees are outlined in Table 3-7.

Ecological Assessments Under the RI/FS Process

One of the primary goals of coordinating with all natural resource trustees throughout the RI/FS process is to ensure that the site-wide ROD addresses both remediation and restoration of natural resources. If this goal is reached in cooperation with the trustees, the assessment of natural resource damages is unlikely. Under the RI/FS program, the ecological risk assessment is the preliminary step in determining whether protected natural resources have been affected by a release of hazardous materials.

Federal and state natural resource trustees play an important part during the RI/FS. Natural resource trustees are encouraged to participate during all phases of the RI/FS process as outlined in Figure 3-26. It is at the RI/FS stage that cleanup goals are agreed to and alternative remediation and restoration plans are discussed. Individual sites are moved out of the RI/FS process only after they are found to be uncontaminated according to criteria agreed to by the co-trustees and other regulatory representatives at the end of phase I or phase II of the RI, or during the FS. Agreement among all co-trustees at this stage increases the likelihood that the remedial design/remedial action will truly address restoration of injured natural resources. If the resulting record of decision is considered protective of the natural resources under the jurisdiction of the trustees, then assessment of natural resource damages, described in 43 CFR 11, is not likely.

Disposal of Property

Once a parcel has been cleared for transfer through a FOST, NEPA regulations must be addressed by the Navy. Protection of newly restored natural resources will continue to be of concern at this stage. Federal and state natural resource trustees should be kept informed throughout the process to expedite the ultimate disposal of Navy property. Ultimate disposal of property at HPS may require that the new lessee or owner agree to implement the Navy's environmental management plans. Because the HPS ecological assessment is still in its initial stages, the primary issues of protection of natural resources have not been determined.

As stated previously in Section 3.3.1, natural resources include land, fish, biota, air, water, groundwater, and other such resources. Information was collected during the completion of the first phase of the base-wide ERA which included tasks such as characterizing habitat and biota, compiling and evaluating toxicological data, and evaluating installation chemical data. The work plan and sampling and analysis plans were approved by the agencies in mid-1995, and field work was completed in early 1996. The draft Phase 1B ERA was submitted in two volumes: (1) Volume 1, Part 1, and Volume 2 were submitted to the agencies in September 1996 and (2) Volume 1, Part 2, was submitted to the agencies in November 1996.

3.3.2 Threatened and Endangered Species

Threatened and endangered species listed by both the Federal government and the state of California, have been observed at HPS (PRC 1993a and 1993b; ESA 1987). Table 3-8 includes species already listed as threatened or endangered, as well as candidates for listing that have been observed or may be present at HPS.

3.3.3 Rare or Sensitive Habitats

Wetlands (see Section 3.3.4), mudflats, and habitat for burrowing owls are present at HPS (USGS 1980; PRC 1993c). The habitat map (see Figure 3-27) shows the precise locations of habitats at HPS.

The mudflats at HPS are located in South Basin and India Basin. They occupy the intertidal zone exposed at low tide. The soft bay mud substrate provides habitat for many invertebrates including oligochaetes, polychaetes, crustaceans, decapods, isopods, gastropods, and bivalves. These invertebrates are preyed upon by shorebird species such as the western sandpiper (*Calidris mauri*), willet (*Catoptrophorus semipalmatus*), sanderling (*Calidris alba*), and dunlin (*Calidris alpina*) which forage extensively at low tide. Shorebirds eat a variety of invertebrate prey usually obtained from the top few centimeters of the substrate, or, less often, from the column of water overlying the substrate. Research into stomach contents has shown that the gem clam (*Gemma gemma*), the polychaete worm (*Neanthes succina*), and the mud snail (*Ilyanassa obsoleta*) are common prey among many shorebirds (USFWS 1992). At high tides, these invertebrates are preyed upon by several fish such as silver surfperch (*Hyperprosopon ellipticum*), cheekspot goby (*Ilypnus gilberti*), and white croaker (*Genyonemus lineatas*).

3.3.4 Wetlands, Surface Water, and Flood Plains

The following sections address wetlands, surface water, and flood plains present at HPS.

3.3.4.1 Wetlands

Several small areas of wetlands have been delineated at HPS (EFA WEST 1991; PRC 1993c). These areas provide the greatest ecological diversity of any habitat at the facility. Wetlands are present within the zone of tidal influence and contain plant species tolerant of estuary environments, such as pickleweed (*Salicornia virginica*), salt grass (*Distichlis spicata*), and sedge (*Carex sp.*) (HLA 1991; EFA WEST 1991; PRC 1993c).

The wetland vegetation and mudflats provide habitat for migratory and resident shorebirds, including the black turnstone (*Arenaria melanocephala*), killdeer (*Charadrius vociferous*), willet (*Cataptrophorus semipalmatus*), sanderling (*Calidris alba*), and western sandpiper (*Calidris mauri*). Both areas also provide foraging habitat during high tides for the osprey (*Pandion haliaetus*), great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), and belted kingfisher (*Ceryle alcyon*) (HLA 1991; PRC 1993e), all of which have been observed using the wetlands, mudflats, and adjacent ruderal habitats. The abundance of shorebirds also serves as prey for the peregrine falcon (*Falco peregrinus)*, which also has been observed foraging in the adjacent disturbed habitat of HPS Parcel E (PRC 1993a).

3.3.4.2 Surface Water

The facility borders San Francisco Bay and two freshwater streams, the Yosemite and Islais Creeks, that flow into the bay adjacent to the facility (USGS 1980). The aquatic habitat surrounding the facility, in particular the shoreline areas of HPS, is used by numerous bird species, including the double-crested cormorant (*Phalacrocorax auritus*), California brown pelican (*Pelecanus occidentalis californicus*), and several dabbling and diving duck species. The waters near the wetland habitat and Pier 2 are commonly occupied by large numbers of wintering ducks, including bufflehead (*Bucephala albeola*), lesser scaup (*Aythya affinis*), barrow's goldeneye (*Bucephala islandica*), and surf scoter (*Melanitta perspicillata*). From November through February, densities of up to 1,000 waterfowl per square kilometer are observed in central bay near the South Basin area (Accurso 1992). These ducks feed on benthic invertebrates, such as mollusks and crustaceans.

Fish, including anchovies (*Engraulis mordax*), Pacific herring (*Clupea harengus palasii*), and the goby species, serve as prey for the California brown pelican (*Pelecanus occidentalis californicus*), osprey

(*Pandion haliaetus*), and carnivorous fish such as leopard shark (*Triakis semifasciata*), smelt (*Atherinopsis sp.*), and California halibut (*Paralichthys californicus*). Other fish inhabiting the waters of HPS include oceanic and benthic species like lingcod (*Ophiodon elongatus*) and starry flounder (*Platichthys stellatus*). Marine mammals observed using the bay waters around HPS include the California sea lion (*Zalophus californicus*) and harbor seal (*Phoca vitulina*).

3.3.4.3 Flood Plains

According to the baseline environmental report (Tetra Tech 1993a), HPS does not lie within the 100-year flood plain, as defined by the U.S. Geological Survey.

3.3.5 Biota

The following sections summarize available information concerning migratory birds, fisheries, marine mammals, special animals and plants, and plants or animals of public interest at HPS.

3.3.5.1 Migratory Birds

The San Francisco Estuary is a seasonal home for many birds migrating along the Pacific Flyway. Other groups of migratory birds observed at HPS include several species of waterfowl, such as bufflehead (*Bucephala allieola*), Barrow's goldeneye (*Bucephala islandica*), lesser scaup (*Aythya affinis*), greater scaup (*Aythya marila*), surf scoter (*Melanitta perspicillata*), and American coot (*Fulica americana*); and shorebirds such as willet (*Catoptrophorus semipalmatus*), black-bellied plover (*Pluvialis squatarola*), and long-billed curlew (*Numenius americanus*). Migratory passerine birds, such as the western meadowlark (*Sturnella neglecta*), bushtit (*Psaltriparus minimus*), brown creeper (*Certhia americana*), and ruby-crowned kinglet (*Regulus calendula*) have also been observed at HPS (PRC 1993a; HLA 1991; ESA 1987).

3.3.5.2 Fisheries

Fisheries have been documented at HPS (Hieb 1992; ESA 1987). Common harvested species include Pacific herring (*Clupea harengus palasii*), northern anchovy (*Engraulis mordax*), topsmelt (*Atherinopsis affinis*), and California halibut (*Paralichthys californicus*).

3.3.5.3 Marine Mammals

Marine mammals have been observed at HPS (PRC 1993f). The California sea lion (*Zalophus californianus*) and harbor seal (*Phoca vitulina*) are routinely observed in San Francisco Bay waters at HPS. These pinnipeds have also been seen feeding on schools of Pacific herring during winter in the water immediately off Parcel D at HPS.

3.3.5.4 California Special Animals

"California special animals" is a broad term used by the Natural Heritage Division of the California Department of Fish and Game to refer to invertebrate and vertebrate taxa of concern, regardless of their legal status. The list includes populations that are (1) rare, restricted, or declining; (2) peripheral to the main population but threatened within California; or (3) closely associated with habitats that are declining in California (for example, wetland, riparian, or old growth forest habitats). The list includes species listed as endangered or proposed for listing, as well as candidate species, California Department of Fish and Game Species of Special Concern, and species designated as "sensitive" by Federal land managers.

Several California special animals have been observed at HPS (PRC 1993a; HLA 1991; ESA 1987). The list in Table 3-9 details species of special concern that have been observed at HPS and those that are expected to become species of special concern at HPS.

3.3.5.5 California Special Plants

California special plants include species that (1) are listed as endangered or threatened by the state or Federal government; (2) are candidates for listing; (3) meet the criteria for listing as described in Section 15380 of California Environmental Quality Act guidelines; (4) are listed by the California Native Plant Society (NPS)as rare or endangered; (5) are rare, restricted, or declining; (6) are peripheral to the main population but threatened within California; (7) are closely associated with habitats that are declining in California (for example, wetland, riparian, or old growth forest habitats); or (8) have been designated as "sensitive" by Federal land managers. Several California Special Plants are present at HPS, as listed below (CNPS 1989).

Species	Common Name	Status
Calystegia occidentalis	Morning Glory	CSP
Eriogonum nudum	Buck Wheat	CSP
Microseris douglasii var. platycarpha	Sunflower	S2S3

CSP California Department of Fish and Game Special Plant
S2S3 Species numbers are between State Status 2, 6-20 element occurrences or 100-3,000 individuals or 2,000-10,000 acres, and State Status 3, 21-100 element occurrences or 300-10,000 individuals or 10,000-50,000 acres.

3.3.5.6 Plants or Animals of Public Interest

Several birds observed at or near HPS (PRC 1993b) are on the Audubon Blue List and are of importance to Audubon societies in the San Francisco Bay Area. Of these species, which are shown below, only the red-shouldered hawk has been observed at HPS.

Species	Common Name
Podiceps auritus	Horned grebe
Buteo lineatus	Red-shouldered hawk
Circus cyaneus	Northern harrier
Asio flammeus	Short-eared owl

No plants of public interest have been identified other than the California Special Plants listed in Section 3.3.5.5.

3.3.6 Cultural Resources

In 1989, the areas around Dry Docks 2 and 3 in Parcels B and C were designated as the Hunters Point Commercial Dry Docks Historical District. Significant structures within this district include Dry Docks 2 and 3, the one-story brick pumphouses (Buildings 140 and 205), a one-story brick gatehouse (Building 204), a one-story brick tool and paint building (Building 207), and the seawalls and wharves connected with the dry docks. These buildings meet the requirements for inclusion in the National Register of Historic Places (Urban Programmers 1989).

In addition, a significant achievement during the World War II period was the construction of Dry Dock 4 and its associated support buildings. Construction was completed in less than 9 months. During that time, approximately 5 million cubic yards of soil was excavated from the area and deposited as fill north and south of Dry Docks 2 and 3. This soil was used to construct a cofferdam in front of Dry Dock 4 (Urban Programmers 1989). Dry Dock 4 is still owned by EFA WEST and is being operated by the Astoria Metals Corporation. Dry Dock 4 has been identified as meeting the criteria for inclusion in the National Register of Historic Places (Urban Programmers 1989).

The survey of historical resources also identified the 450-ton bridge crane and the ordnance and optical building (Building 253) as the only other structures at HPS with the potential to qualify for the National Register of Historical Places. Subsequently, the Navy re-evaluated the 450-ton bridge crane and determined, in consultation with the State Historical Preservation Office, that the removal and destruction of the overhead traveling crane all but destroyed the property's integrity. The ordnance and optical building may have been significant, but years of neglect have left it all but a ruin. Nevertheless, this building will have to be re-evaluated in consultation with the State Historical Preservation Office because it was the work of an important 20th century architect and received an award for its design.

No HPS structures have been identified as significant with respect to the Cold War era.

3.3.7 Archaeological Resources

Prior to contact with Spanish explorers in 1776, the inhabitants of the San Francisco Bay region were the Costanoan people (Moratto 1984). Estimates of the population in the greater bay area at the time of contact with the Spanish vary from 7,000 to 10,000 (Levy 1978). The Costanoans subsisted by hunting and gathering, focusing primarily on the harvest of available acorns native to the surrounding hills. Bay and estuary resources provided shellfish, sturgeon, and salmon, as well as seals and an occasional whale.

With the introduction of the Spanish missionary system, the Costanoans experienced the end of their lifestyle and culture through assimilation and disease. The Indian population is believed to have declined by 80 percent in the 60 years following Spanish occupation of the region. In 1970, the few remaining descendants of the Costanoans established the Ohlone Indian Tribe and obtained title to the

Ohlone Indian Cemetery near Mission San Jose, the resting place of their relatives that died during the Mission Era.

During the period from 1860 to 1880, San Francisco experienced a tremendous growth associated with the gold rush and the construction of the transcontinental railroad, which caused an influx of Chinese immigration. The Chinese established shrimp fishing camps at Hunters Point as early as 1871.

Roger A. Nash prepared a map in 1910 for the Chinese Historical Society of America Syllabus that shows five Chinese shrimp camps adjacent to the dry docks. These camps each consisted of homes, offices, and warehouses. Most of the settlements were located on the northern side of Hunters Point. Also, adjacent to Hunters Point were lodging houses, saloons, and businesses. By 1919, a map of the area shows a settlement on the southern side of the tip of Hunters Point. The subsurface remains from this era possibly exist within Parcels B and C, but they would have been greatly impacted by the construction of the shipyard during World War II and deeply buried under imported fill and dredge spoil.

General prehistoric areas HPS are described in "Shellmounds of the San Francisco Region" by N.C. Nelson, published in 1909 (Nelson 1909). Shellmounds are large piles of shell debris remaining from decades of shellfish harvesting by prehistoric inhabitants of the area. Nelson identified more than 400 prehistoric shellmounds in the San Francisco Bay region, two of which are located at HPS. These sites were destroyed by the grading and excavation required to build HPS. The issue regarding whether the fill contains the remains of these prehistoric sites was addressed in a study by the Navy in 1987. It was determined, in consultation with the State Historic Preservation Officer, that no prehistoric archaeological remains are located at HPS (SHPO 1987).

3.4 ENVIRONMENTAL CONDITION OF PROPERTY

Under the HPS base-wide EBS, all areas and buildings in HPS were classified according to the definitions in the "Standard Classification of Environmental Condition of Property Area Types" (DoD 1995 and PRC 1996b). After the final version of the HPS base-wide EBS was published, DoD revised the definitions of the environmental condition of property in the "Addendum to the BRAC Cleanup Plan Guidebook, August 1996" (DoD 1996). The major difference between DoD 1995 and

DoD 1996 environmental condition property definitions is that Category 2 sites are petroleum-only contaminated areas. Also, the word "storage" has been deleted from the definition of Categories 1 through 4. Land units designated according to the reuse plan prepared by the City of San Francisco are referred to as "subparcels," followed by the designation number defined by DoD. The City of San Francisco has designated 60 subparcels at HPS. Table 3-10 provides subparcel designations cross-referenced with subparcels, IRP parcels, buildings, IR/SI sites, and also including USTs and ASTs within each parcel and subparcel. Table 3-10 also includes the "new" (DoD 1996) and "old" (DoD 1995) DoD categories for each subparcel including the categorization rationale. The new categorization rationale for HPS has not received approval by the regulatory agencies. Table 3-11 provides DoD category designations for each building in HPS, cross-referenced with subparcels, IRP sites, past use/building names, and investigatory points of concern (such as asbestos or past radiological work performed).

The BRAC cleanup plan guidebook defines the seven DoD area (subparcel) types or categories as follows (DoD 1996):

Category 1 - Areas where no release or disposal (including migration) has occurred.

> This area type is defined as follows: a geographically contiguous and mappable area where the results of investigations show that no hazardous substances or petroleum products were released into the environment, or disposed of on site. A determination of this area type cannot be made, however, unless a minimum level of information gathering and assessment has been completed. In accordance with Section 120(h)(4) of CERCLA as amended by CERFA, all such determinations (i.e., "uncontaminated") of this area type must be made on the basis of a records search of the area in question and adjacent property; a review of the chain of title documents for the area, a review of aerial photographs of the area, a visual inspection of the area and adjacent property, and interviews with current and former employees regarding their knowledge of past and current activities on the property. These efforts are (or can be) functionally accomplished via an EBS (or properly scoped PA) of the property in question. If information gathered from these efforts indicated that hazardous substances or petroleum products have been released or disposed of in the area, the geographic location becomes one of the other area types.

Category 2 - Areas where only release or disposal of petroleum products has occurred.

This area type is defined as follows: a geographically contiguous and mappable area where the results of investigation show only that release or disposal of petroleum products has occurred. A determination of this area type must be made in accordance with the same requirements in Section 120(h)(4) of CERCLA, for category 1 areas.

Category 3 - Areas of contamination below action levels.

This area type is defined as follows: a geographically contiguous and mappable area where environmental evidence demonstrated that hazardous substances have been released, but are present in quantities that require no response action to protect human health and the environment. Such quantities of hazardous substances can be below defensible detection limits, or can be at detection limits but below action levels. Below action levels means, in the absence of installation-specific risk-based or standard-based criteria, that the concentrations of any hazardous substances in any medium does not exceed chemical-specific applicable or relevant and appropriate requirements (ARAR). Designation of this area type also means that risk estimates completed for contamination do not do the following:

- Exceed 10^{-6} for any carcinogenic hazardous substance detected in any medium
- Result in a hazard quotient above 1 for any non-carcinogenic hazardous substance detected in any medium
- Exceed 10^{-6} for any carcinogenic hazardous substance, taken together, in any exposure pathway
- Result in a hazard index above 1 for all non-carcinogenic hazardous substances, taken together, in any exposure pathway
- Exceed 10^{-4} for any carcinogenic hazardous substance accumulated across all pathways
- Result in a hazard index above 1 for all non-carcinogenic hazardous substances accumulated across all pathways

Note that Type 3 determinations cannot be made with confidence unless a minimum level of information gathering and assessment has been completed. Therefore, all such determinations should be made on the basis of an SI or equivalent level of effort, which includes biased field sampling and laboratory analysis to support a conceptual understanding of the area.

Category 4 - Areas where all remedial action has been taken.

This area is defined as follows: a geographically contiguous and mappable area where all remedial actions necessary to protect human health and the environment have been taken.

Type 4 includes those areas in which an EBS documents evidence that hazardous substances are known to have been released on the property, but all remedial actions necessary to protect human health and the environment with respect to any hazardous substances remaining on the property have already been taken to meet the provisions of CERCLA Section 120(h)(3). Clarification on the meaning of "all remedial action has been taken" means that the construction and installment of an approved remedial design has been completed, and the remedy has been demonstrated to the EPA to be operating properly and successfully (in practice, usually a year).

Category 5 - Areas of known contamination with removal and/or remedial action under way.

This area type is defined as follows: a geographically contiguous and mappable area where the presence of sources or releases of hazardous substances is confirmed based on the results of sampling and analysis in electronic databases and/or environmental restoration and compliance reports. By definition, this area type contains contaminant concentrations above the action levels. Such concentrations do not meet the criteria that would allow a determination of a Type 3 area. Remedial systems for Type 5 areas are partially or entirely in place, but have not been fully demonstrated.

Category 6 - Areas of known contamination where required response actions have not yet been implemented.

This area type is defined as follows: a geographically contiguous and mappable area where the presence of sources or release of hazardous substances is confirmed based on the results of sampling and analysis as contained in electronic databases/or environmental restoration and compliance reports. This area type contains concentrations of contaminants above action levels. Such concentrations do not meet the criteria that would allow a determination of a Type 3 area. Additionally, required remedial systems have not been selected or implemented.

Category 7 - Areas that are unevaluated or that require further evaluation.

This area type is defined as follows: a geographically contiguous and mappable area where the presence of sources or releases of hazardous substances or petroleum products (including derivatives) is suspected, but not well characterized, based on the results of properly scoped records search, chain of title review, aerial photography review, visual inspection, set of employee interviews, and possibly sampling analysis. They do not, with certainty, fit any of the previous area types because evaluation efforts have not occurred, are ongoing, or are inconclusive.

Figure 3-28 summarizes the classification of HPS property in terms of the categories described above. The map is color-coded to correspond to the seven classifications.

Nondesignated IRP areas and IR/SI sites may be located in one or more parcels or subparcels. The rationale for any one subparcel designation pertains to the nondesignated IRP areas and IR/SI sites contained within that subparcel only. DoD categories within subparcels may differ, but the most conservative category identified in the subparcel is assumed as the overall subparcel category.

Areas at HPS under each category are discussed below and are summarized in Tables 3-10 and 3-11.

3.4.1 Category 1 - Areas where no Release or Disposal (Including Migration) has Occurred

Most subparcels receiving this categorization were originally designated as Category 2 (areas where only storage of hazardous substances had occurred) in the base-wide EBS. Figure 3-28 depicts Category 1 sites in white. Currently, a large portion of Parcel A is defined under category 1. The majority of the subparcels classified under Category 1 contain former residential units. The following subparcels are classified under category 1: H-49, H-50, H-51, H-52, H-54, H-55, H-56, H-57, and N-17. These category 1 subparcels are available for transfer to the City of San Francisco under CERCLA Section 120(h)(4).

3.4.2 Category 2 - Areas where only Release or Disposal of Petroleum Products has Occurred

No subparcels at HPS are classified as Category 2. Only one area at HPS meets this designation (IR-20), however the area does not span an entire subparcel.

3.4.3 Category 3 - Areas of Contamination Below Action Levels

Subparcels classified under Category 3 have undergone full characterization and human health risk assessment evaluations and it has been determined that the levels of contaminants detected are below site-specific action levels. Figure 3-28 depicts Category 3 sites in light green. Subparcel N-4 located in Parcel A is the only subparcel currently classified under Category 3. Within this subparcel is the formerly used Navy barracks. These Category 3 subparcels are available for transfer to the City of San Francisco under CERCLA Section 120(h)(3)(A).

3.4.4 Category 4 - Areas where all Remedial Action has Been Taken

Subparcels classified under Category 4 have been fully characterized, a human health risk assessment evaluation performed, remedial actions have been submitted and approved by the Navy as documented in an FS report; and all remedial actions are complete. Figure 3-28 depicts Category 4 sites in dark green. The following subparcels are classified under Category 4: H-48, H-53, H-OS, S-37, and S-47. These subparcels are a mixture of residential, industrial, and open space areas. These Category 4 subparcels are available for transfer to the City of San Francisco under CERCLA Section 120(h)(3)(A) and (B).

3.4.5 Category 5 - Areas of Known Contamination with Removal and/or Remedial Action Underway

Subparcels classified under Category 5 have been fully characterized, a human health risk assessment evaluation performed, remedial actions and/or removals have been submitted and approved by the Navy as documented in an FS report; and remedial actions are currently ongoing in the subparcel. Figure 3-28 depicts Category 5 sites in yellow. The following subparcels are classified under Category 5: N-5, N-7, N-9, N-10, and N-16. These subparcels are mainly former industrial areas. These Category 5 subparcels are not available for early transfer to the City of San Francisco under CERCLA Section 120(h)(3)(A) or (B).

3.4.6 Category 6 - Areas of Known Contamination where Required Response Actions have not yet been Implemented.

Subparcels classified under Category 6 have been characterized, but a data gap in the characterization exists (for example, the source of a certain contaminant is still unknown or a radiological survey is still required to clear the site for transfer) or a remedial action has been identified, but has not been implemented. All sites that require a remedial action, as proposed in Parcels B and D FS reports are classified under Category 6. IRP sites located in Parcels C and E are also classified under Category 6 because remedial actions have not yet been proposed. Parcel F is classified under Category 6 because the characterization report is currently under review (PRC 1996h). A majority of the subparcels at HPS are under Category 6. Figure 3-28 depicts Category 6 sites in red. The following subparcels are classified under Category 6: N-1, N-2, N-3, N-6, N-8, N-11, N-12, N-13, N-14, N-15, N-18, N-19,

N-20, N-21, N-22, N-23, N-24, N-25, N-26, N-OS, S-27, S-28, S-29, S-30, S-31, S-32, S-33, S-34, S-35, S-36, S-38, S-39, S-40, S-41, S-42, S-43, S-44, S-45, S-46, and S-OS, as well as Parcel F. These subparcels and Parcel F consist of a large portion of HPS and are primarily industrial and open space areas. These Category 6 subparcels may not available for early transfer to the City of San Francisco under CERCLA Section 120(h)(3)(A) or (B).

3.4.7 Category 7 - Areas that are Unevaluated or that Require Further Evaluation

Currently, there are no areas at HPS that meet this designation.

3.4.8 Suitability of Property for Transfer by Deed

Currently, Parcel A is the only parcel in the process of transfer. On November 29, 1995, a CERCLA no action-ROD was signed for Parcel A. A draft FOST for Parcel A was submitted on June 24, 1996, for transfer of HPS property. The Parcel A FOST is expected to be signed in late 1997.

A draft ROD was submitted on October 17, 1996, for Parcel B. The final Parcel B ROD should be finalized in March 1997.

3.5 STATUS OF COMMUNITY INVOLVEMENT

Community relations activities have been ongoing at HPS since late 1987. A chronology of community relations activities is presented in Table 3-12. Activities listed include public meetings, open houses, and workshops carried out by the Navy, including preparation and distribution of a newsletter. The newsletter, "Environmental Clean-Up News," is a Navy publication that describes ongoing cleanup activities and the Navy's participation in large-scale public events. The Navy had its first open house at HPS in August 1994 and brought together representatives from the Navy, regulatory agencies, SFRA, and concerned citizens. The Navy had an additional open house and facility tour on July 25, 1996.

In response to the need for increased employment and subcontracting opportunities for residents of the Hunters Point Bayview community, the Navy has developed programs that allow local residents and small disadvantaged businesses to have increased subcontracting opportunities. As part of this effort, the Navy has presented information regarding current employment opportunities at public meetings

held by the Citizens' Advisory Committee and the HPS RAB. Innovative strategies and expanded interactions with the Hunters Point Bayview community have been implemented to foster community involvement and economic revitalization so that local businesses and residents become involved in the cleanup process at HPS.

Community relations activities conducted since 1987 are summarized below.

- **Information Repository and Administrative Record** - An information repository and administrative record have been established and are maintained at two locations: (1) the San Francisco Public Library, Anna E. Waden Branch, 5075 Third Street; and (2) the San Francisco Public Library, Main Library, corner of McAllister and Larkin Streets. Both repositories were updated in December 1993 and will be updated at least quarterly in the future. The repositories include copies of all major documents pertaining to environmental work at HPS.

- **Mailing List** - A community mailing list of all stakeholders in the community is maintained by the Navy and updated periodically to ensure that community members receive copies of all significant correspondence, fact sheets, and documents.

- **Community Relations Plan** - The first community relations plan for HPS was prepared in 1989 (HLA 1989). The plan will be revised and updated in December 1996 to accurately reflect new community interests and concerns and to provide instructions and procedures for implementing required and recommended community relations activities throughout the IRP process. The community relations plan is designed to (1) provide a blueprint for monitoring and responding to community concerns and informational needs and (2) involve the community in the IRP decisionmaking process.

- **Newsletters** - Thirty-five "Environmental Clean-Up News" newsletters have been published. These newsletters were distributed using the HPS mailing list and at community meetings such as those held by RAB and Citizen's Advisory Committee.

- **FFA Process** - The original FFA was signed on January 22, 1992. A new FFA schedule was agreed to on February 4, 1994, including schedules for the RI/FS for Parcels A through E. The FFA schedules were renegotiated again on June 7, 1995, to include Parcel F, the submerged portion of HPS. The current FFA schedule is presented in Chapter 5.

- **Technical Review Committee/RAB** - The first Technical Review Committee meeting was held in January 1989. Subsequent meetings were held approximately every 2 months thereafter. The Technical Review Committee was changed and expanded to become the RAB in late 1993, and the first RAB meeting was held on December 13, 1993. RAB meetings are held on the fourth Wednesday of each month at the Gloria R. Davis Academic Middle School in Bayview Hunters Point community at 6:00 p.m. The main purpose of the RAB meetings is to provide the Hunters Point Bayview community a forum for input in the

RI/FS process, aspects of base cleanup and conversion, and employment issues, and to provide an avenue for the Navy and the BCT to disseminate environmental information that may affect the community.

- **RAB Membership Activities** - A RAB membership last 2 years. The first term of the RAB members expired in June 1996. The Navy solicited new RAB members by placing public notices in the newspaper and in its newsletter, "Environmental Clean-Up News." The new HPS RAB consists of 46 community members, plus one representative from each of the following agencies: San Francisco Department of Health, SFRA, Navy, EPA, Cal/EPA, DTSC.

- **Community Meetings, Open Houses, and Tours** - The Navy has held and attended numerous community meetings, open houses, and tours. The open houses provided and opportunity for the Navy to present information about the cleanup process at HPS. It also created a forum for participants and community members to ask questions and become involved in the cleanup and closure process. During the open house on August 24, 1994, representatives from the SFRA presented the land-use alternatives under consideration for HPS. Because of the success of the first open house, the Navy has conducted other open houses with similar success. The Navy plans to continue conducting open houses in the future.

- **Workshops and Conferences to Benefit the Community** - The Navy has held workshops with small and small disadvantaged businesses to inform them of subcontracting opportunities. In 1995 and 1996, Navy members attended the "East Bay Conversion and Reinvestment Commission Conference" to help facilitate business opportunities for small and small disadvantaged businesses as part of the Navy's strategy to increase the opportunity for local firms to employ or subcontract with the neighborhood residents and businesses.

- **Small Business and Small Disadvantaged Business Outreach Activities** - Small disadvantaged businesses include women-owned, small and small disadvantaged business concerns, and historically black colleges and universities. The Navy has made the commitment to these businesses and institutions to afford the maximum consideration and opportunity for these business concerns to participate in various areas of their subcontracted work. The Navy encourages the participation of small business and small disadvantaged businesses and places the maximum amount of business practical with these firms consistent with the efficient performance of their environmental projects. This proactive policy results in contracts and jobs for neighborhood residents.

- **Community Job Opportunity Outreach Activities** - The Navy has supported and worked with Business Development Inc. (BDI), a local organization hired to provide information on jobs and contracting. The Navy attended monthly meetings with BDI to develop strategies to increase the awareness of employment opportunities under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract. The Navy also has attended and held conferences that have targeted subcontractors from the Bayview/Hunters Point community. The Navy continues to provide informal updates of employment opportunities as requested during the HPS RAB meetings.

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TABLE 3-7

RESPONSIBILITIES OF NATURAL RESOURCE TRUSTEES
HUNTERS POINT SHIPYARD

Resource	Navy[a]	NOAA[b]	DTSC[c]	Fish and Game[d]	Fish and Wildlife[e]	Other
Threatened and Endangered Species		X (U.S. National Marine Fisheries)		X	X	
Wetland						U.S. Army Corps of Engineers and EPA under the Clean Water Act, Section 404
Migratory Birds					X	
Commercial Fishes		X		X	X (diadromous[f])	
Native Fishes (nongame)				X	X (diadromous[f])	
Marine Mammals		X				
Native Wildlife				X	X	
Native Plants				X	X	
Air			X			Bay Area Air Quality Management District
Minerals						U.S. Bureau of Land Management
Soil			X			
Water			X			

Notes:

a Department of the Navy, Engineering Field Activity West, Naval Facilities Engineering Command; global responsibility as land steward

b National Oceanic and Atmospheric Administration

c California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control; global responsibility as lead Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) agency

d California Department of Fish and Game

e U.S. Fish and Wildlife Service

f Fish species that migrate between freshwater and seawater

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TABLE 3-8

THREATENED AND ENDANGERED SPECIES
HUNTERS POINT SHIPYARD

Species	Common Name	Status at HPS	Designation
Ocnorhynchus tshawytscha	Chinook salmon	Observed	SSC (spring run) SE, FT (winter run)
Spirinchus thaleichthys	Longfin smelt	Observed	FC1
Falco peregrinus	Peregrine falcon	Observed	SE FE
Eremophila alpestris	Horned lark	May be present	SSC FC2
Lanius ludovicianus	Loggerhead shrike	Observed	SSC FC2
Pelecanus occidentalis californicus	California brown pelican	May be present	SE FE
Geothlypis trichas	Common yellowthroat	May be present	SSC FC2 SBS

DESIGNATION CODES

FC1 Category I candidate for listing by the U.S. Fish and Wildlife Service (sufficient biological information is available to support a proposal to list taxa as endangered or threatened)

FC2 Category 2 candidate for listing by the U.S Fish and Wildlife Service (existing information indicates taxa may warrant listing, but substantial biological information necessary to support a proposed rule is lacking)

FE Listed as endangered by the Federal government

FT Listed as threatened by the Federal government

SBS Sensitive Bird Species are designated as those that could become threatened or endangered in the foreseeable future by the U.S. Fish and Wildlife Service

SE Listed as endangered by the state of California

SSC California Department of Fish and Game Species of Special Concern

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TABLE 3-9

CALIFORNIA SPECIAL ANIMALS
HUNTERS POINT SHIPYARD

Species	Common Name	Status at HPS	Designation
Ocnorhynchus tshawytscha	Chinook salmon	Observed	SSC (spring run) SE, FT (winter run)
Spirinchus thaleichthys	Longfin smelt	Observed	FC1
Gavia immer	Common loon	Observed	SSC
Pelecanus erythrorhychos	American white pelican	May be present	SSC
Pelecanus occidentalis Californicus	California brown pelican	Observed	SE, FE
Phalacrocorax auritus	Double crested cormorant	Observed	SSC
Bucephala islandica	Barrow's goldeneye	Observed	SSC
Charadrius alexandrinus	Snowy plover	May be present	SSC, FC2, SBS, MC
Numenius madagascariensis	Long-billed curlew	Observed	SSC
Larus californicus	California gull	Observed	SSC
Sterna caspia	Caspian tern	May be present	SSC
Sterna elegans	Elegant tern	May be present	SSC
Circus cyaneus	Northern harrier	May be present	SSC, AB
Pandion haliaetus	Osprey	Observed	SSC
Falco peregrinus	Peregrine falcon	Observed	SE, FE
Asio flammeus	Short-eared owl	May be present	SSC, SBS, AB
Athene cunicularia	Burrowing owl	Observed	SSC
Eremophila alpestris	Horned lark	May be present	SSC, FC2
Lanius ludovicianus	Loggerhead shrike	Observed	CSC, FC2
Geothlypis trichas	Common yellowthroat	May be present	SSC, SBS, FC2
Melospiza melodia	Song sparrow	May be present	SSC, FC2

DESIGNATION CODES

AB Species listed on the Audubon Blue List of birds designated by the National Audubon Society as experiencing a population decline

FC1 Category 1 candidate for listing by the U.S. Fish and Wildlife Service (sufficient biological information is available to support a proposal to list taxa as endangered or threatened)

FC2 Category 2 candidate for listing by the U.S. Fish and Wildlife Service (existing information indicates taxa may warrant listing, but substantial biological information necessary to support a proposed rule is lacking)

FE Listed as endangered by the Federal government

FT Listed as threatened by the Federal government

TABLE 3-9

CALIFORNIA SPECIAL ANIMALS
HUNTERS POINT SHIPYARD (Continued)

DESIGNATION CODES (Continued)

MC Species is a nongame migratory bird of special Federal management concern because of documented or apparent population declines, small or restricted populations, and dependence on restricted or vulnerable habitats

SBS Sensitive bird species are designated as species that could become threatened or endangered in the foreseeable future by the U.S. Fish and Wildlife Services

SE Listed as endangered by the state of California

SSC California Department of Fish and Game Species of Special Concern

TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
100	N1	Main Electrical Substation for Navy Power	None	X	X	X	X							1
101	N17	Administration Office	None	X		X								1
102	HOS	Old Post Office	None	X						X				1
103	N4	COMSUB Barracks	None		X	X	X			X				1
104	N4	Naval Reserve Armory	None		X	X	X			X				1
109 (108)	N10	Police Station	IR-42	X	X	X				X				5
110	N17	Marine Barracks	None	X										1
111(d)	N10	Lube Oil Pump House	IR-06			X	X		X					5
112(d)	N10	Diesel Oil Pump House	IR-06			X	X		X					5
113	N7	Tug Maintenance and Salvage Diver's Shop	IR-42	X	X	X	X			X				5
114 (113A)	N7	Submarine Barracks	IR-42	X		X	X	X		X				5
115	N5	Submarine Office and Training School	IR-62	X		X	X		X	X				1
116	N5	Submarine Subsistence and Training Building	IR-62	X		X	X		X	X				1
117	N4	COMSUB Barracks	None			X	X			X				1
118(d)	N5	Submarine Officer Quarters	IR-23			X			X					1
119(d)	N5	COMSUB CPO Barracks	IR-23			X								1
120	N7	Enlisted Men's Club	None	X	X				X					5
121	N6	Civil Training Center	IR-23	X	X	X	X			X				5
122	N6	Electrical Substation	IR-61	X	X	X	X							5
123	N8	Battery Overhaul and Electroplating, Storage	IR-10	X	X	X	X			X				6
124(d)	N11	Acid Mixing Plant	IR-24			X			X					5
125	N9	Submarine cafeteria	IR-24	X		X								3
128	N9	Shop Service and Work Control Center No. 1	IR-24	X	X	X				X				5
130	N12	Machine Shop	IR-24	X		X	X			X				5

Legend: V=visual site inpection; P=polychlorinated biphenyl; M=hazardous material; W=hazardous waste; R=radiological; T=tank; A=asbestos; L=lead; D=radon; I=air monitoring

TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
133	N16	Latrine	IR-24	X										5
134	N11	Machine Shop, Q&RA Offices, Central Tool Room	IR-25	X		X	X			X				6
135	N14	Electrical Substation G	None	X	X									5
140	N16	Pump House	IR-26	X	X	X				X				5
141	N16	Dock Shipwright's Shop	IR-26	X	X	X	X			X				5
142A(d)	N16	Air Raid Shelter	IR-26	X										5
144	NOS	Restrooms	IR-23	X										5
145	NOS	Pump House	IR-07	X	X	X								5
146	N6	Industrial and Photo Laboratory, Tacan Facility	IR-23	X		X	X	X	X	X				5
154	N18	Office	None	X	X	X				X				6
156	N12	Rubber Shop	IR-20	X	X	X				X				6
157	N15	Q & RA Industrial Laboratory	IR-26	X	X	X	X			X				6
158	H51	Sentry House	None	X										1
159	N9	Latrine	IR-24											5
19	N1	Apartment Building	None	X										1
203	N23	Power Plant	IR-29	X	X	X	X		X	X				6
204	N21	Pump House	None	X						X				6
205	N21	Pump and Compressor Plant	IR-27	X	X	X			X	X				6
206	N21	Substation A	IR-64	X	X					X				6
207	N21	Toilet	None	X						X				6
208	N21	Canteen and Shop	None	X		X				X				6
211	N25	Machine and Electronic Test and Repair Shop	IR-28	X	X	X	X		X	X				6
214	N20	Combat Weapons System Office	IR-28	X	X					X				1
215	N23	Firehouse	None	X		X	X			X				6
217	N18	Sheet Metal Shop	IR-29	X		X	X			X				6
218	NOS	Restrooms	IR-28	X										6
219	NOS	Electrical Substation	IR-28	X	X	X	X							6
224	N25	Bomb Shelter	IR-28	X						X				6
225	NOS	Shop Service	IR-28	X		X				X				6
226	NOS	Restrooms	IR-28	X						X				6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
228	N24	Former Cafeteria	IR-28	X	X	X				X				6
229	NOS	Electrical Substation	IR-28	X	X	X	X							6
230	N26	Machine Shop	IR-28	X	X	X	X			X				6
231	N22	Machine Shop	IR-28	X		X	X		X	X				6
234 (238)	S27	Latrine and Ships Office	None	X						X				6
236 (235)	N26	Salt Water Pump House	None			X	X		X	X				6
241	N18	Forge Shop	IR-30	X		X			X	X				6
251	N20	Industrial Relations and Control Tool Room	IR-28	X		X			X	X				5
252	N20	Bus Terminal	IR-28	X		X				X				1
253	N25	Electronics, Optical, Radio, and Ordnance Shops	IR-28	X	X	X	X	X	X	X				6
258	N19	Pipe Fitters Shop	IR-28	X		X			X	X				6
270	N24	Paint Shop	IR-28	X		X	X		X	X				6
271	N24	Paint Shop Annex	IR-28	X		X	X		X	X				6
272	N24	Riggers and Laborers Shop, Shop Service Group	None	X	X	X	X		X	X				6
273	N24	Electrical Substation	IR-28	X			X		X	X				6
274	S27	Midway Liaison Office	IR-35	X		X	X	X		X				6
275	N23	Sheet Metal Annex, Aluminum Casting	IR-29	X		X				X				6
278(d)	N18	Storage	IR-63			X								6
279	N18	Material Storage Rack	IR-29			X								6
280	N18	Aluminum Cleaning Facility	IR-29	X	X	X				X				6
281	N24	Electronics-Weapons-Precision Facility	IR-28		X	X	X		X	X				6
282	N23	Abrasive Blast Facility	IR-29	X		X								6
300	S27	Electrical Substation	IR-57							X				6
301	S27	Latrine	IR-57							X				6
302	S28	Transportation Shop	IR-33	X	X	X	X		X	X				6
302A	S28	Transportation Shop	IR-33	X		X	X							6
304	S28	Service Station	IR-33	X		X	X		X	X				6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
306	S27	Electrical Substation I	IR-35	X	X	X	X			X				5
307	S43	Electronic Assembly Facility	IR-55	X	X	X	X			X				6
308	S27	Salt Water Pump House	None	X		X			X	X				4
311	S27	Latrine and Ships Office	None	X	X	X				X				6
313(d)	S27	NRDL Annex G	IR-35			X		X						6
313A(d)	S27	NRDL Annex G	IR-35			X		X						6
322	H51	Gate House	None	X	X	X	X							1
323	S39	Shore Activities, Electronics, Boat Shop	None	X	X	X	X							6
324	S39	Carbon Dioxide Refilling Station	IR-65	X	X	X	X		X	X				6
351	S39	Electronics Shop	IR-34	X	X	X	X	X		X				6
352 (351A)	S39	NRDL Electronics Laboratory	IR-34			X	X	X		X				6
363	S28	Wood Working Shop	None	X	X	X	X		X	X				6
364	S39	Radiation Hot Lab and Chemistry Lab	IR-33	X		X		X		X				6
365	S39	Storage Building, Offices and Film Lab	IR-33	X				X		X				6
366	S28	Boat and Plastic Shop	IR-34	X	X	X	X			X				6
367	S27	Ship Supervisor Field Office	IR-57		X					X				6
368	S27	Pipefitting Shop	IR-22	X		X	X			X				6
369	S27	Rigging Shop	IR-22	X		X				X				6
370	S27	Restroom/Showers	IR-32	X						X				6
371	S35	Equipment Storage	IR-36	X		X	X							6
372	S27	Prefab Decking Shelter	IR-35			X	X			X				6
374(d)	S27	Poseidon Control Hut	IR-68			X	X							6
375(d)	S27	Poseidon Control Hut	None			X	X							6
376	S27	Poseidon Control Hut	IR-68	X		X	X			X				6
377	S27	Poseidon Systems Test Engineering	None	X	X	X	X			X				6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
378	S27	Restroom/Shower	None	X		X	X			X				6
379	S27	Poseidon Engineering	IR-68	X	X	X	X		X	X				6
380	S27	Poseidon Partial Full Test Machine	None	X	X	X	X		X	X				6
381	S27	West Coast Shock Testing Facility	None	X		X	X			X				6
382	S27	Poseidon Arresting System Shelter	IR-68	X		X	X							6
383	S27	Poseidon Shipping and Receiving Building	IR-32			X	X			X				6
384	S27	Poseidon Engineering	None	X		X	X		X	X				4
385	S27	Poseidon Engineering	None	X		X	X			X				4
400	S31	Ships Operational Activity Parts Receiving Storehouse	IR-36	X	X	X	X			X				6
401	S30	Public Works Shop	IR-37	X	X	X	X			X				6
402	S29	Supply Storehouse, Q&RA Offices	None	X	X	X	X			X				6
404A (404)	S30	Supply Storehouse	IR-36		X	X	X			X				6
405	S31	Supply Storehouse	IR-36	X	X	X	X			X				6
406	S36	Storehouse, Packing and Preservation	IR-36	X		X	X			X				6
407	S37	Ships Operational Activity Parts Offices and Supply Storage	IR-66	X		X	X			X				4
408	S38	Furnace Shelter	IR-44	X		X	X			X				4
409	S38	Generator Shop	IR-44	X	X	X	X							4
410(d)	S38	Generator Shop	IR-44	X		X	X							4
411	S38	Shipfitters Shops, Boiler Maker Shop	IR-33	X	X	X	X		X	X				6
413	S36	Supply Storehouse	IR-36	X		X	X			X				6
414	S36	Public Works Furniture Storehouse	IR-36	X	X	X	X			X				6
415	S39	Storehouse	None	X										6
416	S39	Storehouse	None	X										6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
417	S29	Acetylene Manifolding, Welding Engineeers	IR-33	X		X	X			X				6
418	S29	Q&RA Welding Engineering Facility, Metal Spray	IR-33	X		X	X			X				6
419	S29	Oxygen Converter	IR-33	X		X	X			X				6
420	S29	Oxygen Cylinder Changing	IR-33	X	X	X	X			X				6
421	S29	Oxygen Control Shop	IR-09	X		X	X			X				6
422(d)	S29	Office and Latrine	IR-09											6
423(d)	S29	Compressor Hut	IR-09						X					6
424	S29	Area Time House No. 4	IR-33	X		X	X			X				6
435	S30	Equipment Storage	IR-37	X		X	X		X	X				6
436	S30	Material Storage	IR-37	X		X	X			X				6
437	S30	Pipe Storage	IR-37	X		X	X							6
438	S38	Metal Spray Shelter	IR-44	X		X	X							4
439	S37	Equipment Storage	IR-67	X		X	X			X				4
500	S40	CPO Barracks	IR-38	X	X	X			X	X				6
501(d)	S41	Ships Barracks	None											6
502(d)	S41	Ships Barracks	None											6
503(d)	S41	Ships Barracks	None											6
505	S40	Navy Exchange	IR-39	X	X	X	X							6
506(d)	S41	NRDL Chemistry Laboratory	IR-14			X	X	X						6
507(d)	S41	NRDL Biological Laboratory	IR-38			X	X	X						6
508(d)	S42	NRDL Health Physics	IR-38	X		X	X	X						6
509(d)	S44	NRDL Animal Irradiation Laboratory	IR-38			X	X	X						6
510(d)	S44	NRDL Radiation Physics Laboratory	IR-14			X	X	X						6
510A(d)	S44	NRDL Radiation Physics Laboratory	IR-14			X	X	X						6
511(d)	S44	Offices	None		X	X	X							6
511A(d)	S44	Woodworking Hobby Shop	SI-54			X	X							6
512(d)	S42	Elementary School	None											6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
513(d)	S44	Barracks	None											6
514(d)	S44	Barracks	None											6
515(d)	S44	Military Services	None											6
516(d)	S44	Barracks	None											6
517(d)	S42	NRDL Biomedical Facility	IR-70	X		X	X	X						6
518(d)	S44	Movie Theater	IR-14											6
520(d)	S44	Dental Clinic	IR-14		X	X	X							6
521	S44	Power Plant	IR-11	X	X	X	X		X	X				6
523	SOS	Salt Water Pump House	IR-69	X	X	X	X			X				6
5241(d)	S35	Commissary Store	IR-13, IR-39	X		X	X							6
525	SOS	Storehouse	IR-53	X			X			X				6
526	SOS	Storehouse and Offices	None	X	X					X				6
527	SOS	Electrical Substation	SI-40	X	X	X				X				6
529(d)	S41	NRDL Radioisotope Storage and Cockroft-Walton Accelerator	IR-14			X	X	X						6
530	SOS	Automotive Hobby Shop	SI-53	X		X	X			X				6
600	SOS	Bachelor Enlisted Mens Quarters	IR-02	X	X					X				6
606	S41	Shore Intermediate Maintenance	IR-08, IR-38	X	X				X					4
702(d)	S32	Storehouse and NBC office	IR-12	X		X	X							6
704	S35	Transportation Shop Car Shelter	IR-36	X		X	X		X	X				6
707	S35	NRDL Animal Colony	IR-39	X		X	X	X		X				6
708	S35	NRDL Biomedical Facility	IR-39	X		X	X	X						6
709	S35	Gas Station	IR-36	X		X	X		X	X				6
710	S32	Toilet	IR-36	X	X	X								6
803(d)	S35	Commissary	IR-13, IR-39											6
807(d)	S45	Scrap Yard Shed	IR-04	X		X	X							6
808	S46	Industrial Storehouse	None	X		X								1
809	S45	Lumber Storehouse	None	X		X	X							6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
810	S45	Paint and Oil Storehouse	IR-72	X		X	X		X					5
811	S45	Service Station - Diesel Oil Platform	None	X		X	X		X	X				5
813	S47	Supply Storehouse, Offices	SI-77	X		X			X					4
815	SOS	NRDL Main Laboratory	IR-74			X	X	X						6
816	H48	NRDL High Voltage Accelerator/ Laboratory	SI-41	X	X	X	X	X						4
817A	H48	Sentry House, Outside Gate	None	X										4
818	H48	Chlorination Plant	SI-41	X		X								4
819	S47	Sewage Pump Station A	None	X	X	X								4
820	SOS	NRDL Cyclotron	IR-75			X	X	X						6
821	S46	X-Ray Shield Facility, Substation	None	X	X	X								1
823	S46	Sewage Pump Station	None	X										1
830	SOS	Biological Laboratory	SI-76			X	X	X						6
831	SOS	Biological Laboratory	SI-76			X	X	X						6
901	HOS	Officer's Club	SI-19	X		X	X							4
906(d)	H53	Gardening Tool House	SI-43			X	X		X					4
908	H55	Car Gagage	None											1
915	H51	Bank	None	X		X								1
916	N3	Dago Mary's	None											1
917(d)	N1	Store	None	X										1
921	H57	Bachelors Officers' Quarters	None	X						X				1
None	H56		None											1
None	N2		IR-07, IR-18	X	X									6
None	NOS	YYK Sheds	IR-28	X	X	X	X							6
None	S33		IR-05, IR-12	X										6

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TABLE 3-11

BUILDING AND ENVIRONMENTAL CONDITIONS
HUNTERS POINT SHIPYARD (Continued)

Building No.	Sub-parcel	Past Use/ Building Name	IRP Site	V	P	M	W	R	T	A	L	D	I	DoD Category
None	S34		IR-01/21, IR-02, IR-12	X										6
None	SOS	Railroad Right-of-Way	IR-52	X										6
S-211	N23	Boiler Building	IR-28	X						X				6
S-308	S43	Unknown	IR-70	X										6
Various	H49	Residences	None											1
Various	H50	Residences	None							X				1
Various	H52	Residences	None							X				1
Various	H53	Residences	None							X				4
Various	H54	Residences	None							X				1
Various	H55	Residences	None							X				1
Various	N13	Ancillary Structures	IR-58	X		X								6

References:

1. PRC 1996b
2. DoD 1996

Notes:
CPO Chief Petty Officer
DoD Department of Defense
IRP Installation Restoration Program
NRDL U.S. Navy Radiological Defense Laboratory

Legend: V=visual site inpection; P=polychlorinated biphenyl; M=hazardous material; W=hazardous waste; R=radiological; T=tank; A=asbestos; L=lead; D=radon; I=air monitoring

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CHAPTER 4

INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION AND COMPLIANCE

This chapter describes the installation environmental restoration and compliance strategy for HPS. The status of the environmental restoration and compliance programs are described in Chapter 3. The environmental investigation at HPS started in 1984 (NEESA 1984). As of the date of this writing, 78 sites with varying levels of contamination have been identified. Sites currently designated as IR sites are in various stages of CERCLA investigation; sites currently designated as SI sites require no further investigation because the nature and extent of contamination has been delineated. For planning and budgeting purposes for Parcels B through E, information for the following multiparcel sites, IR-38 (Building 500 and former NRDL Buildings 707 and 708, and surrounding areas); IR-45 (Steam Line System); IR-50 (Storm Drain System and Sanitary Sewer System); and IR-51 (Former Transformer Sites), has been consolidated into IR-46 for Parcel B; IR-28 for Parcel C; IR-34 for Parcel D; and IR-72 for Parcel E. Table 3-1 lists the IR and SI sites at HPS (see Section 3.1, bulleted items, which describe how site designations have changed under the Navy's IRP).

The initial strategy for determining the most effective response mechanism (such as interim removal actions) and evaluating remedies for contaminated areas was performed on a case-by-case basis. The Navy has followed a predisposition toward using presumptive remedies for sites once sufficient information is available to reach and sustain a consensus among members of the BCT. The BCT is developing tentative strategies, such as the coordination of all investigation and remediation activities, on an individual basis for Parcels A through F, thus allowing expedited transfer of parcels.

The parcel designation and strategy, compliance strategy, natural and cultural resources strategy, and community involvement strategy are discussed below.

4.1 PARCEL DESIGNATION AND STRATEGY

In 1990, the potentially contaminated sites at HPS were grouped into five operable units. The operable units were based on preliminary evaluation of the potential threat to human health and the environment, locations of the sites, and similarities in investigation or remediation strategy and chemical conditions

(HLA 1988). The original schedule for RI, FS, and ROD activities for the five operable units was set forth in an FFA in September 1990 (see Figure 3-1). In January 1992, the 1990 FFA was modified to add the Water Board as signatory.

In April 1992, the Navy redefined the environmental investigation and cleanup program for HPS by creating geographic parcels. HPS was divided into Parcels A through E. In 1995, Parcel F was added to include the offshore areas and was designated the 78th area of investigation. Currently, HPS consists of six parcels, Parcels A through F. The objectives of geographic parcels were as follows (HLA 1992):

1. Reduce the extent of logistical conflicts between various RI/FS activities (for example, health risk assessment with high uncertainty associated with overlapping operable units)
2. Facilitate efficient and early implementation of measures that protect human health and the environment
3. Allow for expedited land reuse and flexibility in future land use at HPS
4. Reduce the time required to reach overall ROD
5. Allow for estimation of realistic IRP schedules
6. Achieve the above objectives in a resource-effective and cost-effective manner
7. Allow for options for acceleration of cleanup and therefore early release of parcels for civilian use

After renegotiation between the Navy, EPA, and Cal/EPA, the 1992 FFA schedules based on the operable unit approach were set aside and new schedules for the geographic Parcels A through E were agreed upon on February 4, 1994. The 1994 FFA was renegotiated on June 7, 1995 to include the off-shore portion of HPS. The offshore portion of HPS, Parcel F, is evaluated during Phase 1B ERA.

Parcels A through F contain a total of 78 IR sites. IRP sites include sites investigated for chemical contamination, radioactivity, and USTs. The 28 SA sites discovered in early 1994 and three FUDS (IR-75, IR-76, and IR-78) were investigated in 1996 and included under the existing IRP. For planning and budgeting purposes for Parcels B through E, information for the following multiparcel sites, IR-38 (Building 500 and former NRDL Buildings 707 and 708, and surrounding areas); IR-45 (Steam Line

System); IR-50 (Storm Drain System and Sanitary Sewer System); and IR-51 (Former Transformer Sites), has been consolidated into IR-46 for Parcel B; IR-28 for Parcel C; IR-34 for Parcel D; and IR-72 for Parcel E. In addition, for planning and budgeting purposes, FUDS sites IR-74, IR-75, IR-76, and IR-78 are listed as AOC-74, AOC-75, AOC-76, and AOC-78, respectively. No further action has been recommended for the currently designated SI sites because sufficient data exist to delineate the nature and extent of contamination. Of the 46 UST sites that have been removed or closed in place, at least 4 sites do not require further action, while others do.

The composition of Parcels A through F is summarized below.

- Parcel A consists of about 88 acres of a central area and a western adjacent area that is connected by Crisp Avenue. It comprises SI-19, SI-41, SI-43, and SI-77; Parcel A portions of SI-45, SI-50, and SI-51; and IR-59 (groundwater and Jerrold Avenue Investigation) (see Figure 4-1; SI-45, SI-50, SI-51, and IR-59 groundwater investigation are not shown because they are utility investigations, former transformers, or groundwater investigations).

- Parcel B consists of about 66 acres of northeast shoreline and lowland coast. It comprises SI-31, IR-06, IR-07, IR-10, IR-18, IR-20, IR-23, IR-24, IR-25, IR-26, IR-42, IR-46, IR-60, IR-61, and IR-62 (see Figure 4-2; the utility investigations, and former transformer sites of IR-46 are not shown).

- Parcel C consists of about 77 acres of northeast central shoreline and lowland coast. It comprises IR-27, IR-28, IR-29, IR-30, IR-49, IR-57, IR-58, IR-63, and IR-64 (see Figure 4-3; IR-49, the utility investigation, and former transformer sites of IR-28 are not shown).

- Parcel D consists of about 128 acres of southeast central shoreline and lowland coast. It comprises IR-08, IR-09, IR-16, IR-17, IR-22, IR-32, IR-33, IR-34, IR-35, IR-36, IR-37, IR-39, IR-44, IR-53, IR-55, IR-65, IR-66, IR-67, IR-68, IR-69, IR-70, and IR-71 (see Figure 4-4; IR-48, and the utility investigation, and former transformer sites of IR-34 are not shown.)

- Parcel E consists of about 135 acres of south shoreline and lowland coast. It comprises AOC-74, AOC-75, AOC-76, AOC-78, IR-01/21, IR-02, IR-03, IR-04, IR-05, IR-11, IR-12, IR-13, IR-14, IR-15, IR-40, IR-47, IR-52, IR-54, IR-56, IR-72, IR-73, and IR-77 (see Figure 4-5; SI-40, SI-47, and utility investigations, and former transformer sites of IR-72 are not shown).

- Parcel F consists of about 442 acres of submerged tidal and intertidal lands below the waters of San Francisco Bay (see Figure 4-6). It is comprised of AOC-78.

The sequence of parcels, IRP strategy; innovative strategies to expedite cleanup; early action strategy; and the remedy selection approach are discussed below.

4.1.1 Sequence of Parcels, Installation Restoration Program Strategy

The BCT developed a comprehensive strategy in 1995 to address the site inspection, IRP sites, early action, and interim removal sites at each parcel at HPS for investigation and cleanup. The IRP sites have undergone site inspection and are currently in the RI phase of the program. The strategy for addressing contamination at HPS until June 1995 was to complete IRP-related work sequentially from Parcels A through F. In June 1995, in response to the City's reuse plan, the sequence for addressing contamination at HPS parcels was changed and formalized in the new FFA schedule as follows: Parcels A, B, D, C, E, and F. It is expected that as the remedial efforts progress at HPS, further refinements will be implemented as needed. The other elements of the strategy include the following:

- Parcel A will be released for civilian use through an expedited transfer document. The transfer of Parcel A to the City of San Francisco is expected to occur in late 1997.
- EE/CAs and work plans for removal or interim actions at several SI and IR sites have been prepared and are currently in-progress or will be implemented in 1997.
- Radiological investigations have been included in the current proposed RI/FS schedules.
- The ERA, air sampling, tidal influence testing, hydrogeology assessment, and monitoring programs involve an installation-wide approach; results are being integrated in the parcel-based RI/FSs.
- The UST sites are being investigated along with adjacent sites under the IRP in the RI/FS process.
- FUDS, including Buildings 815, 820, 830, and 831, are being investigated under the IRP with Parcel E sites.
- Sites requiring further investigation resulting from the SA investigation have been incorporated into their respective parcel investigations.

4.1.2 Innovative Strategies Used to Expedite Cleanup

In addition to the parcel strategy discussed above, the environmental response strategy includes the following innovative methods to expedite the IRP:

- RI work at most IR sites proceeded based on (1) work plan recommendations presented both verbally and in writing as appendices to parcel SI reports and (2) in response to regulatory agency comments on these reports at meetings.
- Rather than waiting for the submission of the SI report or a RI work plan, data presentations were given directly to the BCT in lieu of the RI work plan. This strategy resulted in estimated time savings of 6 to 9 months by avoiding the wait for submission of an SI report, review of the SI report, and submission of a new RI work plan.
- Submission of alternative selection reports to identify early or interim actions resulted in an estimated time savings of 2 to 3 years.
- Expediting the review period for documents resulted in a time savings of 30 to 45 days for each document.
- Compared to the original operable unit designation, division of HPS into six parcels reduces the number of documents needed and uses time and resources more efficiently. This strategy resulted in an estimated time savings of 1 to 2 years.
- Submission of the FS reports and proposed plans concurrently has resulted in an estimated time savings of 8 to 12 months.
- Rather than delay excavation until after sampling and analysis to determine the depth and extent of contamination, combining investigation with excavation activities resulted in an estimated time savings of 1 year for each excavation site.
- Instead of using drilling for groundwater investigations, extensive use of the HydroPunch resulted in an estimated time savings of 1 to 2 years.
- Rather than stopping to revise the work plan, the Navy issued a Notification of Variance to modify the work plan without stopping work.

4.1.3 Early Actions Strategy

The overall goal of the project team is to accomplish soil cleanups through early actions, including exploratory excavations, removal actions, and interim actions. By focusing early actions on soil

cleanup, long-term remediation can then focus on groundwater remediation and any large-scale soil or sediment contamination that may require a more extensive effort than possible prior to an FS.

Prior to completing an RI or FS, some sites may clearly demonstrate that cleanup actions (such as excavation and removal) are necessary because either the levels of contaminants exceed regulatory limits or immediate risks to human health or the environment may exist. If a technology demonstrated to be successful exists, the BCT may decide to conduct an early action at the site.

4.1.4 Remedy Selection Approach

Remedies will be selected in accordance with statutory mandates and NCP criteria. The HPS BCT will involve all interested parties in the remedy selection process. Particular attention will be given to the following during the evaluation of alternatives:

- **ARARs.** The BCT will identify applicable requirements for anticipated remedial actions. The effectiveness of reducing concentrations of contaminants to chemical-specific ARARs will be evaluated. Waivers will be considered when appropriate.

- **Applicable Remedies.** The presumptive remedy selection approach advocated by EPA will be applied in selected cases. Focused FSs will be developed where appropriate.

- **Land-Use/Risk Assessment.** Risk assessment protocols will incorporate future land-use exposure scenarios.

- **Base-Wide Treatment Facilities.** Treatment facilities will be considered for treating wastes similar in nature present at several sites across HPS (for example, sandblast grit).

- **Corrective Action Management Units.** RCRA regulations have been modified to allow more extensive use of on-site treatment technologies for remediation wastes without triggering land disposal restrictions or minimum technologies requirements by designating a corrective action management unit.

- **Petroleum, Oil, and Lubricant Remedies.** Source-specific actions for petroleum, oils, and lubricants will be addressed under the state UST programs. The release of these products at 28 sites may have occurred, primarily because of leaking USTs, steam lines, fuel lines, and poor housekeeping practices. As a result of leaking USTs, large-scale groundwater remedial actions will be incorporated into the appropriate groundwater actions for each zone if practicable under the IRP. The Navy has started the identification of IR sites within Parcels B through E that contain (1) petroleum-only constituents (non-CERCLA hazardous substances) in soils; (2) petroleum constituents with CERCLA substances in soils below screening levels; (3) CERCLA substances in soils above screening levels; and

(4) sites that require no further action. The purpose of these actions are to segregate petroleum-only in soil and groundwater issues from CERCLA issues for administrative purposes and inclusion of these sites in a petroleum corrective action plan (CAP). The preparation of these CAPs has begun for Parcels B, D, C, and E.

The BCT will hold project team meetings to discuss conceptual remedies as early in the RI stage for each parcel as possible. The goal is to make the FS integral to the RI to the maximum extent possible. This strategy should expedite the culmination of the process in a ROD.

4.2 COMPLIANCE STRATEGY

This compliance strategy is based on the status of compliance-related activities conducted at HPS as determined during the bottom-up survey conducted for this BCP. Currently, overall compliance programs that establish a framework for tracking environmental compliance are not described in any reports except the hazardous waste management plan (EFA WEST 1992). The Navy is working to develop compliance strategy programs to address storage tanks, hazardous materials and hazardous waste management, solid waste management, PCBs, asbestos, radon, RCRA facilities, NPDES permits, oil/water separators and sumps, lead-based paint, air pollution, and drinking water at HPS. The compliance strategy for each of these components is discussed below.

4.2.1 Storage Tanks

Phase I and Phase II tank closures and removals were completed in 1991 and 1993, respectively, and are described in Section 3.2.1. Additional potential USTs have been discovered during various site surveys such as the SA, and during field work conducted in December 1993 and January 1994. The field work confirmed the presence of five USTs, and although not confirmed, a sixth UST is believed to exist based on visual inspection of HPS property. Further investigation of these USTs have been investigated under the parcel RI.

ASTs at HPS have not undergone a comprehensive survey. However, a list has been compiled of ASTs identified during the IRP. ASTs that have been removed are described in Section 3.2.1.4.

The strategy for environmental compliance regarding storage tanks at HPS includes the following:

- Conduct a comprehensive inventory of all previous UST investigations. The comprehensive inventory should focus on USTs remaining after Phase I and Phase II work to ensure their integration into the IRP. To ensure proper disposal or remediation of contaminated soil, this work should also address the excavated hydrocarbon-contaminated soil and soil replaced during UST removal.

- Prepare the documentation necessary to obtain closure from the Water Board at the end of remediation.

- Conduct a comprehensive inventory of existing AST at HPS and research any documentation available for any tanks previously removed. Such an inventory should include the Navy's previously used ASTs; tenant ASTs, and dip tanks, sumps, and tanks located above the first floor of a building.

4.2.2 Hazardous Materials and Hazardous Waste Management

The management of hazardous materials and hazardous waste is regulated by several Federal and state regulations as discussed in Section 3.2.2.1. Compliance issues related to hazardous waste management of previous Navy activities and current tenant activities usually fall into one of these categories: (1) RCRA-regulated issues, (2) IDW issues, and (3) housekeeping issues. The strategy for environmental compliance regarding each of these categories should include the following:

RCRA-Regulated Issues

- Update the current plan for handling and managing hazardous wastes generated during normal activities by the Navy and other Federal agencies at HPS. The current plan was prepared in 1992 when HPS was under the control of Naval Station Treasure Island. HPS has since been transferred to EFA WEST.

- Evaluate and, if necessary, improve the current strategy for 90-day storage of RCRA-regulated materials at HPS.

- Develop a strategy to ensure that HPS tenants comply with RCRA regulations. This strategy may involve the inclusion of appropriate language into the lease, educational programs for tenants (such as on RCRA regulations), and assessment of tenant hazardous waste handling and disposal practices conducted by the Navy or by the City with the Navy's active support.

Investigation-Derived Waste Issues

- A plan to address the evaluation and disposal of any radioactive-contaminated IDW now stored in Building 130 was completed in 1996 and the containers have been slated for disposal in early 1997.

- Evaluate and, if necessary, improve the current 90-day storage practice to meet RCRA regulations for Building 130. Building 130 is the only building currently used for storage of IDW.

Housekeeping Issues

- Develop a strategy to ensure that tenants at HPS practice proper handling, storage, and disposal of hazardous wastes that they may generate. This can be accomplished through an assessment of the hazardous waste handling and disposal practices of tenants, inclusion of appropriate language in the leases, and educational programs (for example, for RCRA regulations) for the tenants.

4.2.3 Solid Waste Management

Solid waste management at HPS is regulated by a variety of state, Federal, local, and Navy regulations as discussed in Section 3.2.3.1. The strategy to ensure compliance should include the following:

- Conduct a survey of the solid waste management practices of the Navy and tenants at HPS. To determine compliance, the survey should identify existing practices and compare them to Federal, state, and local regulations. If any violations are identified, specific recommendations should be developed to bring the practices into compliance.

- Evaluate current demolition and salvaging activities at HPS to evaluate their compliance with Federal, state, and local regulations.

4.2.4 Polychlorinated Biphenyls

Most PCB-contaminated equipment (equipment containing greater than 50 ppm PCBs) has been removed from HPS as discussed in Section 3.2.4. EFA WEST updated the 1989 PCB survey report in 1996 and is in the process of removing and disposing remaining PCB and PCB-containing equipment (see Section 3.2.4.1 for PCB classification). Removal and disposal equipment is anticipated to be completed in 1997 (EFA WEST 1997c).

4.2.5 Asbestos

An asbestos compliance strategy has been prepared for HPS. The memorandum of understanding states in Section 3(h)(iii) that prior to transfer of a parcel, damaged or accessible ACM posing a threat to human health and the environment shall be removed or encapsulated (EFA WEST 1994c). Although the memorandum of understanding has been set aside, the asbestos compliance strategy has continued. Asbestos inventories have been completed, and an overall abatement strategy has been developed. An asbestos survey of buildings in Parcels B through E at HPS has been completed. This survey identified 138 buildings with potential ACM and 98 buildings with confirmed ACM. In addition, 76 of these 98 buildings have materials containing friable and damaged asbestos that require abatement (see Table 3-6). Abatement is now underway (EFA WEST 1997c). The overall asbestos abatement strategy is as follows:

- Asbestos abatement is ongoing in the 76 buildings with damaged, friable, and accessible asbestos (see Table 3-6). The friable asbestos abatement program for Parcel A was completed in September 1995. The friable asbestos abatement program at the remaining parcels is ongoing. The expected date of abatement completion is early 1997.

- Structures containing confirmed ACM that are not damaged or friable may be transferred without abatement and without disclosure requirements.

- To alleviate any health concerns related to the release of naturally occurring asbestos fibers into the air, any excavation activities at HPS that involves the excavation and crushing of serpentinite bedrock will be performed using dust suppression techniques. Air monitoring for asbestos may be appropriate based on the scope and scale of excavation.

- An in-place management program will be established, including periodic inspection and necessary maintenance to ensure continued upkeep of buildings containing asbestos material. This program will ensure that any newly damaged, friable, and accessible ACM is discovered and corrected prior to disposal.

4.2.6 Radon

Very few areas at HPS contain soil or bedrock that naturally generates radon. Uranium decays to form radon. With the exception of a few minor areas containing small amounts of naturally occurring radioactive materials, most of HPS consists of rock or soil materials containing very low levels of uranium. Current DoD policy is not to perform a radon assessment as discussed in Section 3.2.6.2.

4.2.7 RCRA Facilities

No RCRA-permitted facilities currently operate at HPS. The Navy conducts hazardous waste activities under the 90-day storage clause. Navy tenants are required to comply with RCRA regulations by their lease agreements, but no auditing has been conducted. However, as stated previously under Section 4.2.2, a strategy should include the following activities at a minimum:

- Prepare the documentation necessary to obtain closure from the Water Board at the end of remediation.
- Conduct a comprehensive inventory of existing AST at HPS and research any documentation available for any tanks previously removed. Such an inventory should include the Navy's previously used ASTs; tenant ASTs, and dip tanks, sumps, and tanks located above the first floor of a building.

4.2.8 National Pollutant Discharge Elimination System Permits

The overall storm water pollution prevention strategy is to implement the "Addendum Storm Water Pollution Prevention Plan (SWPPP), Hunters Point Shipyard" (Radian Corporation 1995) of the "Final Storm Water Pollution Plan" (PRC/MW 1994). The addendum updated the current HPS strategy for reducing and preventing storm water pollution, contains a list of industrial activities at HPS, lists personnel responsible for implementing the SWPPP, outlines the best management practices for each industrial activity identified at HPS to reduce and prevent storm water pollution, and outlines erosion and sediment control practices at HPS.

4.2.9 Oil/Water Separators and Sumps

No oil/water separators are currently in use at HPS. Only the steam pipe system at the bottom of the oil reclamation ponds (IR-03) was used to separate oil from water at the ponds. A treatability study has been conducted to evaluate the feasibility of thermally and chemically treating the oil at the ponds to enhance recovery and remediate the oil remaining in the subsurface below the ponds. The overall oil/water separator strategy is to implement the oil reclamation ponds treatability study recommendations under the IRP.

Many sumps are located within HPS buildings, but no program is aimed specifically at identifying and investigating sumps. Currently, sumps are investigated whenever located during the course of work under the IRP.

4.2.10 Lead-Based Paint

No strategy for lead-based paint is required, because the DoD policy for lead-based paint only addresses current family housing (EFA WEST 1994g).

4.2.11 Air Pollution

EFA WEST holds seven air permits (see Section 3.2.11.2). These emission sources were not used after the shutdown of HPS in 1974. Therefore, according to Air Quality Management Regulation 2, Rule 4, the potential for emission reduction credits are no longer available for these emission sources. After the Navy determines whether it needs the existing permits to support current needs, it will determine if the permits should be terminated or transferred to support reuse.

4.2.12 Drinking Water

Amendments to the Safe Drinking Water Act require all public drinking water systems to monitor and, if needed, control the concentrations of the lead and copper in the tap water they provide. In response to these regulations, the HPS has implemented a lead and copper drinking water compliance program. The drinking water at HPS exceeded EPA's action level for lead during the monitoring program conducted in 1994 (Radian Corporation 1994). As a result, in accordance with the Safe Drinking Water Act and requirements of the City of San Francisco, the Navy informed the tenants of the results of drinking water monitoring and suggested, as a precautionary measure, to obtain bottled drinking water. Monitoring of tap water at HPS will continue as required by the Safe Drinking Water Act.

4.3 NATURAL AND CULTURAL RESOURCES STRATEGY

This section presents the compliance and IRP strategy to better define the status of natural resources at HPS.

The first phase of the base-wide ERA has been completed. The draft Phase 1B ERA work plan and sampling and analysis plan were approved by the agencies in mid-1995, and field work was completed in early 1996. The draft Phase 1B ERA report was submitted in two volumes. Volume 1, Part 1, and Volume 2 were submitted to the agencies in September 1996. Volume 1, Part 2, was submitted to the agencies in November 1996.

This section discusses the Navy's natural and cultural resources strategy for threatened and endangered specie, rare or sensitive habitats, wetlands, surface waters, flood plains, migratory birds, fisheries, marine mammals, California special animals, California special plants, animals or animals of public interest, and archaeological resources.

4.3.1 Threatened and Endangered Species

Recent field reconnaissance surveys at HPS have not identified any previously unidentified threatened and endangered species at HPS. Tables 3-8 and 3-9 list the threatened and endangered species and California Special Animals that are currently known to occur or that may occur at HPS. These tables present data compiled from ecological field survey reports from EFA WEST contractors, local researchers, museums, nonprofit organizations, and government agencies. These data have been incorporated into the first phase of the ERA.

4.3.2 Rare or Sensitive Habitats

Field survey reports and reconnaissance surveys have demonstrated that the only rare or sensitive habitats located at HPS are the wetlands, mudflats, and pelagic and benthic habitats associated with San Francisco Bay.

4.3.3 Wetlands

Wetlands have been adequately defined at HPS as described in Section 3.3.4, and no further information is necessary.

4.3.4 Surface Waters

Surface waters have been adequately defined at HPS as described in Section 3.3.4, and no further information is necessary.

4.3.5 Flood Plains

The 1980 U.S. Geological Survey map indicates that areas of HPS are at or above sea level and are not within any known flood plains. As discussed in Chapter 1, 442.90 acres of HPS are underwater in San Francisco Bay and designated as Parcel F. Because HPS is not located within a flood plain, this issue will not be addressed further.

4.3.6 Migratory Birds

Several species of migratory birds have been observed at HPS, including migratory waterfowl, shorebirds, passerines, and raptors. The potential risk to these species posed by contamination at HPS is being evaluated in the ERA.

4.3.7 Fisheries

Fisheries have been adequately defined at HPS as described in Section 3.3.5.2, and no further steps are planned.

4.3.8 Marine Mammals

Marine mammals have been observed at HPS as described in Section 3.3.5.3. No further steps are planned because HPS is not the primary habitat of the observed marine mammals.

4.3.9 California Special Animals

Various species listed as California Special Animals have been identified at HPS as described in Section 3.3.5.4 and Table 3-9. Further definition of the risk to California Special Animals will be defined under the ERA.

4.3.10 California Special Plants

Plant species listed as California Special Plants have been identified as described in Section 3.3.5.5. Terrestrial survey reports being developed under the IRP will be reviewed upon completion to confirm the presence of California Special Plants at HPS. Further definition of the risk to California Special Plants will be defined in the ERA.

4.3.11 Animals or Plants of Public Interest

The plants and animals of public interest at HPS are those protected under Federal and state wildlife conservation laws and those listed on the Audubon Blue List, as described in Sections 3.3.5.6 and 4.3.1 and Tables 3-9 and 3-10. Further definition of the risk to these plants and animals will be defined in the ERA.

4.3.12 Cultural Resources

The disposal of Dry Docks 2, 3, and 4 and the ordnance and optical building will require compliance with Section 106 of the National Historic Preservation Act (16 USC Section 470f). The Navy has completed the consultation process mandated by the regulations (36 CFR Part 800) implementing Section 106 for the lease of Dry Dock 4.

4.3.13 Archaeological Resources

Because there are no significant archaeological resources at HPS, no strategy is needed (see Section 3.3.7.).

4.4 COMMUNITY INVOLVEMENT STRATEGY

The first community relations plan for HPS was prepared in 1989 and was revised and updated in December 1996 (SFRA 1996). To update the plan and accurately reflect new community interests and concerns, particularly cleanup issues related to reuse of the shipyard, a series of community interviews between the Navy and the community were conducted. These interviews provided instructions and procedures to the Navy for implementing required and recommended community relations activities throughout the IRP process. The community relations plan is designated to (1) provide a blueprint for

monitoring and responding to community concerns and informational needs and (2) involve the community in the decisionmaking process of the IRP.

A key interest of community members continues to be related to increased employment opportunities and how potential property reuse options will result in greater economic viability in the community. The Navy has sought to facilitate job opportunities in the community.

The Navy's efforts to facilitate job opportunities include employing small disadvantaged businesses in the community through subcontracted work. Small disadvantaged businesses include women-owned small and small disadvantaged business concerns and historically black colleges and universities. The Navy has made the commitment to these businesses and institutions to afford the maximum consideration and opportunity for these business concerns to participate in various areas of their subcontracted work. The Navy encourages the participation of small businesses and small disadvantaged businesses concerns and places the maximum amount of business practical with these firms consistent with the efficient and cost-effective performance of their environmental projects. The Navy monitors all subcontracting opportunities, including opportunities related to the Bayview/Hunters Point community. BDI, a local organization, was contracted by the Navy to provide information on jobs and contracting to small businesses and small disadvantaged businesses. The Navy also continues to provide informal updates of employment opportunities as requested during the HPS RAB meetings.

The following outline presents a community relations strategy to maintain and strengthen the flow of information between the Navy and the community. The community includes neighborhood residents, local businesses, citizen and environmental groups, elected officials, developers, and the media. The following activities comply with community involvement requirements under CERCLA:

- After the FS for each parcel is completed, the following activities must occur:

    1. Develop and distribute the proposed plan (usually in the form of a fact sheet) to the public (preferable 2 weeks before the public meeting).

    2. Conduct a public comment period on the proposed plan for at least 30 days (and an additional 30 days upon written request).

    3. Provide an opportunity for a public meeting about 2 weeks after the start of the public comment period to (1) review the plan and (2) solicit verbal comments.

4. Place a public notice in local newspapers of general circulation about 2 weeks before the meeting to announce the completion of the proposed plan; the start of the public comment period; and the date, time, and location of the public meeting.

5. Prepare a written response to public comments on the proposed plan (a responsiveness summary).

6. Place a notice in local newspapers of general circulation to notify the public of the availability of the ROD and responsiveness summary.

- After completion of an EE/CA, the following activities must be completed:

    1. Place a public notice in a local newspaper for general circulation to provide a brief description of the EE/CA and announce its availability.

    2. Conduct a public comment period for at least 30 days (an additional 15 days upon request) for the submission of oral and written comments.

    3. Prepare a written response to significant comments and make it available to the public in the information repository.

- After completion of the final engineering design, the following activities must be completed:

    1. Develop and distribute fact sheet (preferably 2 weeks before the public meeting).

    2. Conduct a public comment period.

    3. Provide an opportunity for a public meeting.

- Maintain and update the information repository and administrative record.

- Issue a public notice in local papers of general circulation to announce planned removal actions.

- Maintain and continuously update the community mailing list.

- Continue to seek input from the established HPS RAB.

The following activities are being addressed by the BCT on an ongoing basis to facilitate completion of the President's five-point plan:

- Establish points of contact. Community concerns, inquiries, and issues are directed through the BRAC environmental coordination and community relations specialist to ensure that the information is disseminated to the BCT and other appropriate individuals and that the Navy communicates a consistent message to community members. The BRAC environmental coordinator or community relations specialist will attend community meetings regarding the cleanup, closure, and reuse process to ensure that cleanup levels are consistent with the intended future use of the parcels. An important step toward achieving ongoing coordination and integration is attending key community and reuse meetings. The designated community relations specialist should support the Navy by tracking meetings, selecting key meetings that require attendance, attending those meetings, and debriefing the BCT following each key meeting. This strategy will help ensure that all key personnel are kept informed of issues that may impact cleanup activities.

- Continue to conduct open houses and work shops. As special community concerns arise (for example, cleanup schedules as they relate to reuse needs), workshops or open houses may provide useful forums for the exchange of information on an informal basis. It has been suggested that an open house be held to update the community on subcontracting and local hiring opportunities.

- Prepare and distribute fact sheets on ongoing cleanup activities and associated timelines on a regular basis. The fact sheets will be prepared and distributed to persons on the community mailing list to describe major milestones (for example, completion of major studies, including the EBS and identification of property parcels available for leasing or transfer) and the overall process associated with property cleanup, closure, and reuse.

- Continue to update the mailing list to include more neighborhood residents.

- Use the RAB as forum for discussing community relations issues.

- Implement training opportunities for neighborhood residents to qualify for IRP work at HPS.

- Integrate innovative strategies that increase the opportunity for local firms to employ or subcontract with neighborhood residents and businesses.

- Hold workshops on subcontracting opportunities for small disadvantaged businesses.

- Initiate proactive measures that result in contracts and jobs for neighborhood residents. Implementation of these strategies is discussed in Section 3.5.

CHAPTER 5

ENVIRONMENTAL PROGRAM MASTER SCHEDULES

This chapter presents the HPS master schedules of anticipated activities for the environmental restoration program and compliance program at HPS. In addition, issues related to the natural and cultural resources and the BCT meeting schedule are discussed.

5.1 ENVIRONMENTAL RESTORATION PROGRAM

The environmental restoration program schedules include a timeline to prepare, approve of, and comment on the RI report, FS report, proposed plan, and ROD. These schedules are determined when the FFA is executed and assume that unlimited resources are available to clean up the site. The FFA is a working agreement between regulatory agencies and the Navy to facilitate the investigation and cleanup of former DoD properties. For HPS, the agreement and schedules were made between the Navy, EPA, and Cal/EPA.

The original FFA for HPS was prepared in 1990 and was signed by the Navy, EPA, and Cal/EPA. The 1990 FFA was modified in 1992 to include the Water Board as signatory and was signed on January 22, 1992. The 1992 FFA were developed based on grouping the RI/FS sites into operable units. Operable units were based on the preliminary evaluation of potential threats to human health and the environment, locations of sites, and similarities in investigation or remediation strategies and chemical conditions. Each of these operable units had individual schedules negotiated by the Navy and the regulatory agencies under the IRP through the completion of the ROD.

In 1992, HPS IRP sites were restructured into geographic Parcels A through E (see Sections 3.1.1 and 4.1). After renegotiation between the Navy, EPA, and Cal/EPA, the 1992 FFA schedules were discarded and new schedules for the geographic Parcels A through E were agreed upon on February 4, 1994. The 1994 FFA was renegotiated on June 7, 1995, to include the off-shore portion of HPS, which was officially added as the sixth parcel (Parcel F). Each IRP site is grouped into one of the six parcels except for those sites that cross parcel boundaries (such as the utility lines; see Table 3-1). For planning and budgeting purposes for Parcels B through E, information for the following multiparcel sites IR-38 (Building 500 and Former NRDL Buildings 707,708, and surrounding

areas); IR-45 (Steam Line System); IR-50 (Storm Drain System and Sanitary Sewer System); and IR-51 (Former Transformer Sites), has been consolidated into IR-46 for Parcel B; IR-28 for Parcel C; IR-34 for Parcel D; and IR-72 for Parcel E.

An aggressive schedule for Parcel A culminating in a CERCLA ROD was agreed upon in mid-1995 and signed in November 1995. The Parcel A schedule was met and is not presented in this chapter. The June 7, 1995 FFA schedules for the completion of Installation Restoration Program activities at Parcels B through F are presented in Figure 5-1 assuming report submittals, agency review, and response to comment periods are not extended. For Parcels B though E, the schedule identifies accelerated but achievable dates for the completion of the RI, FS, and ROD for each parcel. For Parcel F, the schedule identifies the PA, the Phase 1B ERA Report, and the Phase 2 ERA work plan. Radiation investigations are also included under the IRP and will be completed under the same schedules.

Figure 5-2 presents the proposed remedial design and remedial action schedule for Parcels B through E. The BCT has expressed the need to discuss the renegotiation of the FFA schedule and include dates for the initiation of post ROD activities, including remedial design and remedial action. These schedules are based on the ROD final approval completion dates presented in the Figure 5-1. These schedules are not legally enforceable and have not been negotiated with either EPA or Cal/EPA.

In addition to the schedules executed under the FFA, Figure 5-3 presents the schedule for proposed or completed removal actions and interim remedial actions such as exploratory excavations. These activities are considered opportunities for accelerating cleanup but are not enforceable. Other removal actions or interim remedial actions not identified in Figure 5-3, but identified through the ongoing RI work, will be completed as part of the remedial action for the specified parcel.

All of these schedules assume that unlimited resources are available to clean up HPS, although this is not the case. Because the technical requirements currently exceed available funds or contract capacity, these schedules are currently undergoing renegotiation. The renegotiation would, therefore, impact other schedules presented. When available, the revised schedules will be distributed to the appropriate parties.

A table showing projected budgets for IRP activities will be provided in Appendix A of this BCP. Appendix A is not currently available; however, it will be distributed to members of the BCT under separate cover at a later date. Appendix A will contain cost estimates for internal purposes only and, therefore, will not be provided to the public.

5.2 COMPLIANCE PROGRAMS

In fiscal year 1997, EFA WEST budgeted for the following compliance activities at HPS:

- Ongoing PCB and PCB-containing equipment removal and abatement
- Ongoing asbestos abatement at Parcels B through E
- Petroleum Correction Action Plan
- Solid waste management
- Storm water monitoring

A table showing projected budgets for the environmental compliance activities will be provided as Appendix A to this BCP. As mentioned above, Appendix A is not now available.

5.3 NATURAL AND CULTURAL RESOURCES

Because no prehistoric sites have been discovered and no further actions are needed regarding the bridge crane and Dry Dock 4, no budget estimates or schedules are required to address further actions related to natural or cultural resources.

5.4 MEETING SCHEDULE

The HPS BCT meets approximately every 2 weeks at either HPS or at one of the offices of the team members. The RAB currently meets every fourth Wednesday of each month at the Gloria R. Davis Academic Middle School located in the Bayview Hunters Point community.

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